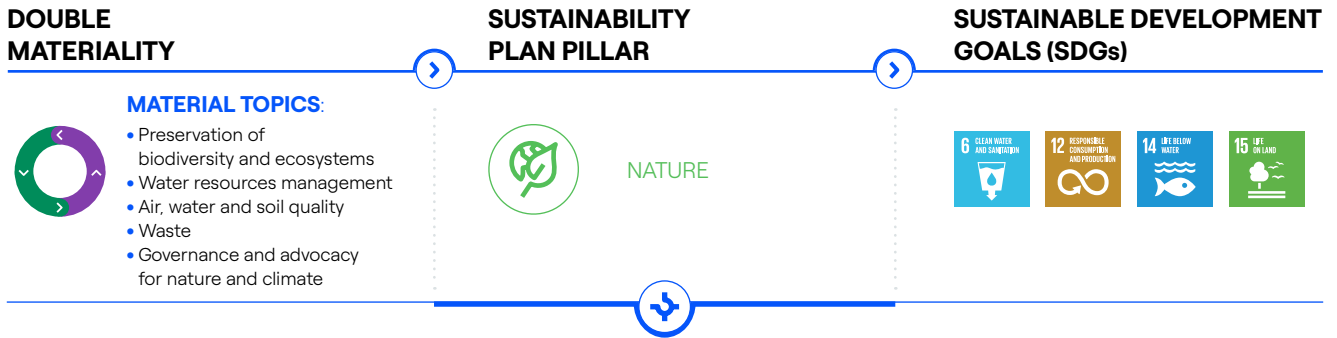


ROADMAP TOWARDS NATURAL CAPITAL CONSERVATION



Enel is pursuing its path of sustainable development by promoting natural capital conservation and fighting against climate change. The Group sets specific targets for reducing impacts, restoring habitats, and sharing the opportunities and benefits of ecosystem services with the communities Enel interacts with.

Below the 2023 results related to the previous 2023–2025 Sustainability Plan, the resulting progress and targets of the 2024–2026 Sustainability Plan, which may be redefined, added, or outdated with respect to the previous Plan.

ACTIVITIES	2023 RESULTS	2024-2026 TARGETS	MAIN SDGs
PRESERVATION OF BIODIVERSITY AND ECOSYSTEMS			
Extra Checking on Site (ECoS) on environmental issues	89 ECoS carried out on environmental issues	50 ECoS carried out on environmental issues in 2026	14 15
BIODIVERSITY PROTECTION			
Preservation of biodiversity	<ul style="list-style-type: none"> • Group guidelines established to verify the No Net Loss target for new projects and applications on the Generation and Grids pilot projects; • creation of a catalog of nature-based solutions for urban biodiversity projects and application. 	<ul style="list-style-type: none"> • No Net Loss <ul style="list-style-type: none"> – implementation on selected projects in high biodiversity areas starting from 2025; – implementation for new infrastructures by 2030; • No Net Deforestation by 2030; • No Go in areas designated as UNESCO World Heritage Natural Sites⁽¹⁾. 	14 15
	<p>Awareness of the value of biodiversity and new partnerships:</p> <ul style="list-style-type: none"> • a biodiversity awareness campaign targeted at all internal staff was launched in December 2023 and reinforced in 2024; • partnerships were consolidated globally, while also maintaining oversight at the local level. 	<p>Awareness of environmental issues and natural capital conservation: launch of an annual awareness campaign on environmental issues/natural capital conservation based on the results of the double materiality analysis⁽²⁾.</p>	14 15

(1) Commitment related to new generation infrastructure.

(2) Target has been redefined as partnerships have been established and the focus is on spreading awareness of environmental issues and natural capital conservation.

Goals

New
 Redefined
 Outdated

Progress

Not in line
 In line
 Achieved

N.A. = not applicable, target not included in the 2023–2025 Sustainability Plan

ACTIVITIES	2023 RESULTS	2024-2026 TARGETS	MAIN SDGs
Preservation of biodiversity	Nature risk/opportunity analysis: internal application of TNFD guidelines to assess impacts, risks and opportunities: an assessment of the business and technology impact, risks and opportunities was conducted based on TNFD guidelines.	Analysis and management of Impacts, Risks and Opportunities relating to environmental issues: consolidation of the assessment of nature impact, risks and opportunities following the materiality analysis and updates to the respective action plan in 2026 ⁽³⁾ .	14 15
	Nature footprint - Assessment metrics and restoration plan: consolidation of the Group's Biodiversity KPIs.		14 15

WATER RESOURCES MANAGEMENT

Reduction of specific fresh water withdrawal	-53% vs 2017	-58% in 2026 compared to 2017 -65% in 2026 compared to 2017	6 12
--	--------------	--	------

AIR QUALITY

Reduction of specific SO ₂ emissions	-75% vs 2017	-81% in 2026 compared to 2017 -85% in 2030 compared to 2017	12
Reduction of specific NO _x emissions	-53% vs 2017	-51% in 2026 compared to 2017 -70% in 2030 compared to 2017	12
Reduction of specific dust emissions	-54% vs 2017	-54% in 2026 compared to 2017 -60% in 2030 compared to 2017	12

WASTE MANAGEMENT

Reduction in the weight of total waste generated	-51% vs 2017	-55% in 2030 compared to 2017	12
Promoting and disseminating good practices on waste management and end-of-life	A program to raise awareness of waste management and share best practices on end-of-life was implemented, involving both internal staff and key contractors.	Target is considered outdated as widespread awareness has been gained on the issue	12
"ZERO Plastic Project" Reduction in the use of single-use plastic in Enel Group offices (office scope)	Reduction in single-use plastic (office scope) when compared to the pandemic period in the main countries of operation, especially Italy and Spain.	Target is considered outdated as it has been achieved in the main countries of operation	12
	• Enel sites in Italy ⁽⁴⁾ : -85%		12
	• Enel sites in Spain ⁽⁴⁾ : -85%		12

(3) Target has been redefined, integrating metrics and the recovery plan into the analysis of impacts, risks and opportunities.

(4) Compared to the volume of single-use plastic in 2018. Reduction calculated based on office attendance. Does not include offices with fewer than 20 employees.

ROADMAP TOWARDS NATURAL CAPITAL CONSERVATION



183 no.

PROJECTS FOR THE PROTECTION OF SPECIES AND NATURAL HABITATS IN OPERATIONAL SITES

200 in 2022 → **-8.5%**

8,343 ha

AREA COVERED BY NATURAL HABITAT RESTORATION PROJECTS

9,452 ha in 2022 → **-11.7%**

0.20 l/kWh

TOTAL SPECIFIC FRESHWATER WITHDRAWAL

0.23 l/kWh in 2022 → **-13.0%**

0.09 g/kWh

SPECIFIC SO₂ EMISSIONS

0.07 g/kWh in 2022 → **+28.6%**

0.26 g/kWh

SPECIFIC NO_x EMISSIONS

0.32 g/kWh in 2022 → **-18.8%**

0.006 g/kWh

SPECIFIC DUST EMISSIONS

0.005 g/kWh in 2022 → **+20.0%**

3.3 Mt

WASTE PRODUCED BY OPERATING AND MAINTENANCE ACTIVITIES

3.4 Mt in 2022 → **-2.9%**



Enel upholds its commitment to sustainable development by actively promoting the protection of natural capital and the fight against climate change, through the definition of specific targets to reduce impacts, restore habitats and share opportunities and benefits of ecosystem services with the communities with which it interacts, in line with the Environmental Policy⁽¹⁾ and Biodiversity Policy⁽²⁾.

In 2023, plans set out in the **Kunming-Montreal Global Biodiversity Framework (December 2022)** at international level were launched, while at European level, regulations are being defined in order to slow the degradation of ecosystems, with the introduction of binding targets for Member States.

In particular, at European level, the main lines of action include:

- **Nature Restoration Law.** The regulation establishes an objective of implementing area-based restoration measures covering at least 20% of the EU's land and sea area by 2030, and all ecosystems in need of restoration by 2050, requiring Member States to formulate specific national plans. The proposal also includes specific objectives for urban ecosystems, agricultural and forest ecosystems. **Enel** has actively supported the Commission's activities, promoting synergies between the restoration of degraded areas and the development of renewable energies.
- **Air quality.** In 2023, the European Parliament and Council discussed the text of the proposal to **revise air quality directives**, confirming the introduction of a "zero pollution" objective for 2050, the alignment of European Union air quality standards with WHO (World Health Organization) recommendations, public awareness-raising with respect to atmospheric pollution, the establishment of an air quality index and the introduction of a new right for individuals who suffer from health damage to claim and obtain compensation. **Enel** actively participates in the review process by promoting the adoption of zero-emission technologies that generate benefits both globally, in terms of GHG reduction, and locally, in terms of reducing atmospheric pollution.
- **Industrial emissions.** As regards industrial pollution of air, water and soil, an institutional agreement was reached in 2023 on the text of the **Industrial Emissions Directive**, which establishes new rules and extends their scope to encompass an even greater number of

sectors – including large-scale intensive farming – as well as requiring the competent authorities to impose more stringent limits. The new rules are also aimed at increasing transparency and public participation in the authorization process. **Enel** supported the review process, particularly as pertains to large combustion plants, in line with the commitment it has already adopted for a number of years to progressively adapt power plants powered by fossil fuels, thanks to the introduction of technologies with low emissions of polluting substances. Furthermore, Enel actively supports the development of new technologies, such as electrification based on renewable energy, to support other sectors and uses of energy, such as the transport sector or heating and cooling of buildings.

- **Soil strategy.** As part of the **European Union Soil Strategy for 2030**, in 2023 the European Commission published a proposal for the first European law on soil monitoring. This directive aims to restore soil and ensure its sustainable use by establishing a robust and coherent monitoring framework for all Member States. In this context, Enel is supporting the proposed strategy, by promoting a circular approach to land management, in particular through the reuse and redevelopment of brownfield sites, as well as the repowering and lifetime extension of wind farms, in order to limit the use of soil. Furthermore, Enel is actively pursuing the reuse of areas within its industrial area. There are several projects on a global scale for the redevelopment of abandoned industrial sites of different sizes and in different contexts, which become a development opportunity for the surrounding area and for the country system.
- **Euro 7 standard for vehicles.** In 2023, an institutional agreement was reached on the revision of the Euro 7 standards, which establishes limits for pollutant emissions in internal combustion vehicles. The new standards will reduce pollutants for heavy vehicles. In this context, **Enel** supports the adoption of zero-emission mobility technologies, such as electric mobility. Furthermore, Enel supports this path through its participation with Eurelectric in the Zero Pollution Stakeholder Platform ("**Towards a Zero Pollution Ambition for Air, Water and Soil – Building a Healthier Planet for Healthier People**"⁽³⁾).

(1) Since 1996 Enel has adopted a Group Environmental Policy, which was updated in 2018, 2022 and 2024. The Enel Group's Environmental Policy covers the entire value chain, applying to: (i) all the production phases of every product and service, including distribution and logistics phases, as well as the management of related waste; (ii) each site and building; (iii) all relationships with external stakeholders; (iv) all mergers and acquisitions; in addition, it is shared with (v) key business partners (including partners related to non-managed operations, joint ventures, outsourcing or third-party producers); (vi) every supplier, including service and contractor suppliers; (vii) due diligence and Merger&Acquisition processes.

(2) In 2015, Enel published the Group's Biodiversity Policy, which was updated in 2023 following the release of the Kunming-Montreal Global Biodiversity Framework.

(3) COM (2021) 400 final: Communication Pathway to a Healthy Planet for All – EU Action Plan: "Towards Zero Pollution for Air, Water and Soil".

Partnership with associations and organizations for sustainable development

2-28

The fight against climate change and against the consequences it is having on the planet's biodiversity and ecosystems has increasingly become a priority, including at a social level, for governments, institutions, businesses and citizens. The latest COP 15 on biodiversity in Montreal, which led to the definition of the Global Biodiversity Framework, and the most recent global summits, such as the UN General Assembly in New York, COP 28 and the annual meeting of the World Economic Forum in Davos, have strongly contributed to increase the multi-stakeholder debate and renew awareness of issues related to nature and biodiversity, which can no longer be viewed in isolation from the current climate emergency. In this context, new coalitions and initiatives have arisen in recent years, aimed at encouraging multilateral dialogue and increasing political ambition for nature. Enel, which for years has been committed to partnering with the sector's main global stakeholders, also continued its active commitment into 2023 with actions such as:

- participating in the working group "Roadmaps to Nature Positive" promoted by the World Business Council for Sustainable Development (**WBCSD**), in which Enel actively participated as regards the energy sector. The roadmap, launched during the week of the UN General Assembly in New York in September 2023, is intended as a guide to help companies define ambitious and credible strategies and actions towards the nature positive objective of the Global Biodiversity Framework;
- the partnership with the Taskforce on Nature-related Financial Disclosures (**TNFD**) launched in 2021 within the Forum, and continued during 2023 with Enel's participation in the TNFD Pilot Program, which tested the new TNFD Framework and contributed to the publication of the TNFD recommendations to assist businesses and financial institutions in assessing and reporting on risks and opportunities linked to nature and biodiversity;
- joining the group of TNFD Early Adopters, in January 2024 and Enel's commitment to publish the first TNFD-aligned disclosure for the 2025 financial year, in line with the progressive strengthening of disclosure to meet TNFD recommendations. Nonetheless, the current disclosure already takes into account the majority of the TNFD recommendations;
- the partnership with **Business for Nature**, launched in 2020 with the signing of the call to action "Nature is Everyone's Business", has continued over the years to call on governments to adopt ambitious environmental policies to reverse the loss of nature in this decade. In 2023 Enel also contributed to the definition of the new Business for Nature strategy, participating in the "Business for Nature's Business Action Strategy" workshop;
- participation as a member of the **Coalition Linking Energy And Nature for action** (CLEANaction), promoted by WWF, which involves electrical companies and sector associations with the objective of assessing and mitigating the impacts and potential risks that new renewable energy generation projects could have on biodiversity and nature.

Governance model for nature

| 2-9 |

Enel's organizational and corporate governance model ensures that sustainability issues are appropriately taken into consideration in all relevant Company decision-making processes, by defining specific tasks and responsibilities for the main corporate governance bodies.

The Board of Directors plays a central role in corporate governance, as do the committees it has established and which have the power to investigate, propose and advise, in order to ensure an adequate internal division of its functions, as well as a related party transactions committee. During 2023, the Corporate Governance and Sustainability Committee dealt with nature-related issues, reflected in the strategies and related implementation methods in 4 of the 7 meetings held, in particular during the review of: (i) the Sustainability Report for the 2022 financial year, coinciding with the Consolidated Non-Financial Statement pursuant to Legislative Decree No. 254/2016 for the same

year; (ii) the materiality analysis and the guidelines of the Sustainability Plan 2024-2026, including environmental targets; (iii) updates on the main activities carried out in 2023 by the Enel Group in the field of sustainability, on the status of implementation of the Sustainability Plan 2023-2025 and regarding Enel's inclusion in the main sustainability indices and ratings.



For more information on the tasks and activities carried out by the corporate bodies, please refer to the Enel Report on Corporate Governance and Ownership Structure, available on the www.enel.com website, governance section, as well as the chapters "**Sound governance**" and "**Zero emissions ambition and just transition**" in this document.





ENEL GROUP ENVIRONMENTAL POLICY

Enel is committed to protect the environment and natural resources, tackle climate change, and contribute towards sustainable economic development as integral part of Enel strategic planning, development, and operation. These are key factors in consolidating the Company's leading position in the energy markets.

Such commitment⁽¹⁾ is based on these **key principles**:

1. protect the environment by assessing and managing risk, preventing impacts and exploiting opportunities;
2. mitigate the effects of increasing environmental degradation and climate change while taking into consideration their social impacts;
3. set and review targets to avoid, mitigate or reduce impacts on terrestrial and water ecosystems while pursuing a continuous improvement approach on process and performances, making the necessary resources available;
4. improve and promote the environmental sustainability of products and services;
5. meet legal compliance obligations and voluntary commitments, ensuring that operations are carried out in accordance with the legal requirements of the different countries.

and pursues ten **Strategic Goals**:

1. **To apply internationally recognized Environmental Management Systems to the whole organization, underpinned by the principle of continuous improvement and by the adoption of environmental indicators to measure performance.**
 - a. Ensuring implementation of ISO certification 14001 and its extension to the entire scope of the Group's activities, streamlining certifications in the various organizational areas and operational sites
 - b. Identifying roles and responsibilities of management and employees in implementing the environmental management processes
 - c. Managing environmental risk, in particular, pollution prevention and emergency response situations, controlling and limiting any potential impact on people and the environment
2. **To reduce environmental impacts by using the best available technologies and best practices in the design, construction, operation and decommissioning stages of plants, with a life cycle approach.**
 - a. Applying, as extensible as possible, environmentally sustainable design criteria fostering circular solutions along the whole value chain
 - b. Assessing and mitigating environmental and social impacts caused by the construction of new power plants and infrastructure, their operation or by major repurposing activities, including any positive fall out connected to sites and/or materials optimization
 - c. Ensuring the internal development and application of international best practices and Best Available Technologies (BAT)
3. **To build assets and infrastructures that preserve the land and biodiversity.**
 - a. Assessing Dependencies, Impacts, Risks and Opportunities of the Group's activities on biodiversity, natural resources and ecosystem services related to communities or groups that have traditional or recognizable usage rights
 - b. Developing and implementing infrastructures based on the impacts' Mitigation Hierarchy principles (avoid, minimize, restore, compensate), as reported on Enel's Biodiversity Policy
 - c. Monitoring and reporting progress towards the achievement of local and global goals and targets, for accounting performances on biodiversity and natural capital management
 - d. Protecting habitat of high biodiversity value and, among these, natural, forests and protected areas
 - e. Mitigating the visual and landscape impacts of power and distribution plants and protecting archaeological assets during construction activities
 - f. Promoting innovative solutions of urban biodiversity in the implementation infrastructures and services
4. **To promote climate action aligned with limiting the increase of global temperature to 1.5 °C with respect to preindustrial era, accelerating the energy transition towards zero emissions, and increase business adaptation to climate change.**
 - a. To foster climate mitigation to reduce direct and indirect greenhouse gas emissions across the entire value chain by boosting renewables, sustainable and digital grids, electrification of energy demand and energy efficiency solutions, while managing transitional risks and seizing the potential opportunities that the energy transition provides
 - b. To reduce vulnerability to climate physical risks, both chronic and acute, increasing the resilience of the business activities and its infrastructure to the effects of climate change and the ability to respond promptly to adverse events

(1) As also clearly stated in the Group's Human Rights Policy.

-
- 5. To preserve Water, Air and Soil and optimize water management.**
- a. Efficiently managing water resources for industrial uses, with a particular focus on “water stress” areas, reducing its consumption, minimizing freshwater withdrawal and increasing the recovery rate of wastewater
 - b. Preventing and reducing the pollutant load of wastewater through their treatment or the zero-discharge configuration
 - c. Preventing and controlling soil and air pollution, minimizing their impacts on ecosystem, and conducting rehabilitation as needed
 - d. Adopting water management plans in hydropower plants that preserve the ecological state of catchments and the multipurpose services for local communities

-
- 6. To ensure optimal waste management.**
- a. Preventing and reducing waste production by optimizing processes
 - b. Adopting and implementing a waste management plan based on a waste hierarchy approach to prevent, reuse, where possible recycle and lastly dispose
 - c. Substituting and minimizing use of substances of concern and phasing out substances of very high concern

-
- 7. To promote circular economy approach and initiatives.**
- a. Applying, in collaboration with suppliers, a Circular Economy approach along the business value chain, implementing from the early stages circular by design solutions to reduce resource consumption and minimize life cycle environmental impact, maximizing the quantity of recovered end-of-life equipment and materials
 - b. Improving traceability of products, components and raw materials with significant actual or potential impacts on biodiversity and ecosystems along value chain
 - c. Improving Secondary Raw Material adoption for efficient resource management
 - d. Seizing life extension and equipment second life opportunities

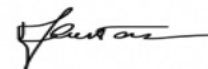
-
- 8. To develop innovative solutions for the environment.**
- a. Digitalizing process, and data management optimization
 - b. Developing innovative solutions to support renewable energy generation, integrated with energy storage systems
 - c. Strengthening smart grids as an enabling factor of the energy transition towards renewable and distributed energy

-
- 9. To promote sustainable environmental practices with suppliers, contractors, customers and partners.**
- a. Extending Enel’s approach on management and improvement of environmental performance to partnership
 - b. Qualifying suppliers by assessment criteria based on environmental risk and performances
 - c. Assessing suppliers according to their environmental performances in activities carried out on Enel’s behalf, fostering the implementation of environmental management systems

-
- 10. To communicate with citizens, institutions, the Group’s workforce and any other relevant stakeholders about the Company’s environmental performance.**
- a. Communicating the Company’s performance regularly and transparently and providing open data access to the Group’s key environmental parameters and initiatives
 - b. Consulting and engaging periodically local stakeholders by free, prior and informed consent
 - c. Providing awareness campaign and training for employees to ensure their engagement and to increase competences;
 - d. Contributing to increasing environmental awareness of stakeholders

The Environmental Policy is submitted to the Board of Directors with the approval of the Sustainability Report and consequently disseminated and applied with the commitment of the Top Management.

The Chief Executive Officer
Flavio Cattaneo



Group environmental management

Enel ensures constant supervision and monitoring of environmentally relevant activities through a granular and harmonized organization at the level of central coordinating structures and at Country level. Specifically:

- at **Group (Holding)** level there is a central HSEQ (Health, Safety, Environment and Quality) Function with responsibility for guidance, coordination and definition of environmental policy and all other specific guidance policies. Within the HSEQ Function, the SHE Factory has been created, which is a unit dedicated to specialized training for internal staff on Safety, Health and Environment issues;
- at **Business Line** level, there are HSEQ Functions whose role is to coordinate the management of the respective environmental issues, ensuring the necessary specialist support in keeping with the Holding's guidelines;
- at **Country** level, there are Staff and Business Line structures as well as managers and contact persons identified in the individual operating units that manage the specific aspects of the various industrial sites.

Roles and responsibilities on Health, Safety, Environment and Quality issues are defined and reported in the Company organization charts; delegations of function with power of attorney are also issued in both environmental and safety matters, with assignment of necessary related decision-making and spending powers. This organization ensures the definition and management of operational procedures on these topics, in conformity with country regulations, as well as the compliance of the Integrated Health, Safety and Environment Management System with the requirements of international standards ISO 14001:2015 and ISO 45001:2018.

Application of **ISO 14001 certified Environmental Man-**

agement Systems (EMS) is one of the strategic tools defined by the Group's Environmental Policy. At the end of 2023, almost all staff (**93%⁽⁴⁾**) were certified, while for new plants and installations, activities are progressively planned with a view to preparing for certification. Given the complexity and variety of activities carried out in the Group, an ISO 14001:2015 certified modular approach has been adopted, with the definition of a management system at Holding level, which provides guidance and coordination to the Business Lines on environmental issues. Each Business Line has launched its own EMS focused on its own specific activities. Furthermore, the main thermal and geothermal production sites in Europe now also have EMAS (Eco-Management and Audit Scheme) registration. In support of activities for monitoring environmental performance and the definition of improved plans for the operating units of the Business Lines, the **Group environmental reporting system** Enel Data on Environment (EDEN) is used. During 2023, further improvements were made to version 2.0 of the EDEN tool, in order to make the data validation system and the calculation and reporting of environmental KPIs even more robust. Enel also has the **global digital dashboards** She.metrics and She.start for monitoring environmental accidents and improvement actions, which are defined during assessments or Extra Checking on Site (see the paragraph "Operational analysis and monitoring tools").

Enel has also **promoted the extension of the principles of Environment and Safety to its partners** for new stewardships, with the aim of defining measures for managing environmental impacts and risks, as well as commitments to the protection and conservation of natural habitats.

Training and internal communication

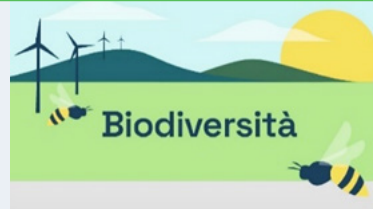
Training is one of the strategic objectives of the Group's policy and forms an integral part of the EMS. In 2023, approximately **32,000 hours of training on the environment and nature** were provided to more than 13,000 employees, of which over 8,000 hours were provided directly through SHE Factory. Among the activities was the ongoing implementation of the environmental training program, targeted at increasing the skills of the Group's technical staff and people with operational responsibilities (Environmental Competence Building Program). In particular, in addition to the pillars already covered in previous years, and subse-

quently reprised in some local areas – which concerned **management of waste** and **contaminated sites** as well as **water** and **wastewater management** – a topic that is very topical and characteristic to the Group's business has been added, namely the **environmental management of batteries**. Besides the training of technical specialists, SHE Factory actively defines and coordinates awareness campaigns at Group level on strategic issues. The objective for 2023 was to raise awareness on **biodiversity issues** and **waste management**.

(4) In 2023 the reporting methodology was revised so as to base it on the number of people covered by the management system. This led to a deviation of 99% compared with the data published in 2022, which referred to the Company's entire portfolio.

Biodiversity Awareness.

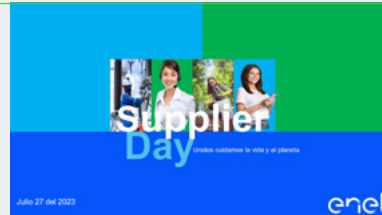
Every year, Enel promotes in-house initiatives with the aim of promoting greater awareness to all its employees on biodiversity protection. A webinar on biodiversity was produced in 2023 that covered, among other things, the policy principles and commitment of the Group, performance monitoring, the main impacts of the business on biodiversity and, finally, ongoing projects of the various Business



Lines. The course was provided to all Group staff and was made available in the various internal environmental training modules.

Waste Awareness.

In 2023, a global campaign on waste management was delivered through webinars and in-person sessions, which involved over 4,500 colleagues with management and/or operational responsibility roles in this sector, as well as almost 700 of the main contracted companies present in all Countries, Regions and Business Lines, and which produce or manage waste during the course of their activities. The campaign was aimed at strengthening knowledge of the waste management guidelines adopted by the Group, as well as raising awareness about best waste management and recovery practices, from production



to storage, transport and end destination. In the main countries of the Group, awareness days were also organized for contractors to encourage correct management of environmental issues, with a particular focus on the importance of their commitment to correct waste management and maximizing waste recovery, across the entire supply chain.

Assessing impacts, dependencies and risks

The identification of potential **impact** factors on nature and biodiversity is fundamental for Enel in order to define the most effective strategies to avoid, minimize, remediate or compensate for the associated impacts, in line with the provisions of the **Mitigation Hierarchy** included in the Group's Environmental Policy. Similarly, the identification of **dependencies** on natural capital and biodiversity makes it possible to identify the most appropriate strategies to reduce the related risks to the Company.

For the management of impacts and dependencies also with reference to **the entire value chain**, Enel has adopted a **combined and progressive approach**, aimed primarily at evaluating those related to direct activities in operational assets as well as in the design and construction of new assets and subsequently to the procurement of goods in the supply chain.

Specifically:

- as regards **direct activities in operating assets**, a basic investigation was carried out with data from the utility sector, aimed at defining materiality matrices for each technology relevant for the Group, identifying priority investigation sites (hotspots) by cross-referencing

with the site-specific characteristics of the asset, and performing a preliminary qualitative assessment of the levels of residual risk associated with each technology;

- as regards siting and construction of **new plants**, evaluations were undertaken with the aim of adopting unique evaluation criteria and specific objectives for No Net Loss and No Net Deforestation, as outlined in the paragraph "Enel's commitment to biodiversity";
- as regards the **supply chain**, from procurement plans for equipment and plant components, an analysis was launched in 2023 to examine the corresponding raw materials and the impacts associated with their extraction and refinement, particularly affecting habitats and environmental matrices.

The assessment of impacts, dependencies and risks, which are described in greater detail in the following paragraphs, was conducted in accordance with the general guidelines and recommendations for the energy sector developed by the Taskforce on Nature-related Financial Disclosures (TNFD) and, where applicable, by the Science Based Targets Network (SBTN).

Impact factors

The analysis of **direct activities** covered all of the Group's main infrastructures, ranging from electricity production from renewable, thermal and nuclear sources, to electricity distribution systems, in the main countries where the Group is present⁽⁵⁾. Currently, the analysis does not consider activities and infrastructures linked to energy services, such as electric car charging stations, or staff offices, as they typically operate within built environments.

The main **impact factors** (or pressures) that may be exerted on nature are summarized in the following categories, which have been adopted as the starting point for analyzing actions implemented to mitigate the associated risks

1. use and modification of ecosystems (terrestrial, fresh water, marine);
2. use of resources (mainly water withdrawal);
3. climate change (GHG emissions);
4. pollution (emissions, discharge, waste);
5. disturbances (noise, odors, visual impact, artificial lighting) and introduction of invasive species.

The table shows the results of the preliminary materiality analysis of impact factors conducted at Group level for the various technologies via the ENCORE⁽⁶⁾ tool applied to the utility sector, by internally reviewing the scores based on the specific construction and operating solutions adopted by the Group.

IMPACT FACTORS BY TECHNOLOGY	HYDRO	SOLAR	WIND	GEOTHERMAL	COAL	OIL & GAS	NUCLEAR	GRIDS
1.1 Use of terrestrial ecosystems	VM	M	M	M	M	M	M	M
1.2 Use of fresh water ecosystems	VM				NM	NM	NM	
2. Water withdrawal	M	NM		M	VM	VM	VM	
3. Emissions of climate-changing gases (GHG)	NM			NM	VM	M		NM
4.1 Air pollutants (non-GHG)	NM			M	M	NM	NM	
4.2 Water pollutants	M			NM	NM	NM	M	
4.3 Soil pollutants		NM	NM	M	M	NM	NM	M
4.4 Solid waste	M			NM	VM	NM	M	M
5. Disturbance factors	NM	M	M	M	NM	NM	M	M

VM Very Material
 M Material
 NM Not Material
 Not applicable

The overall analysis indicates that, considering only the material impact factors with respect to the different technologies weighted according to their share of production at the Group level⁽⁷⁾, the **main impacts** on the environment

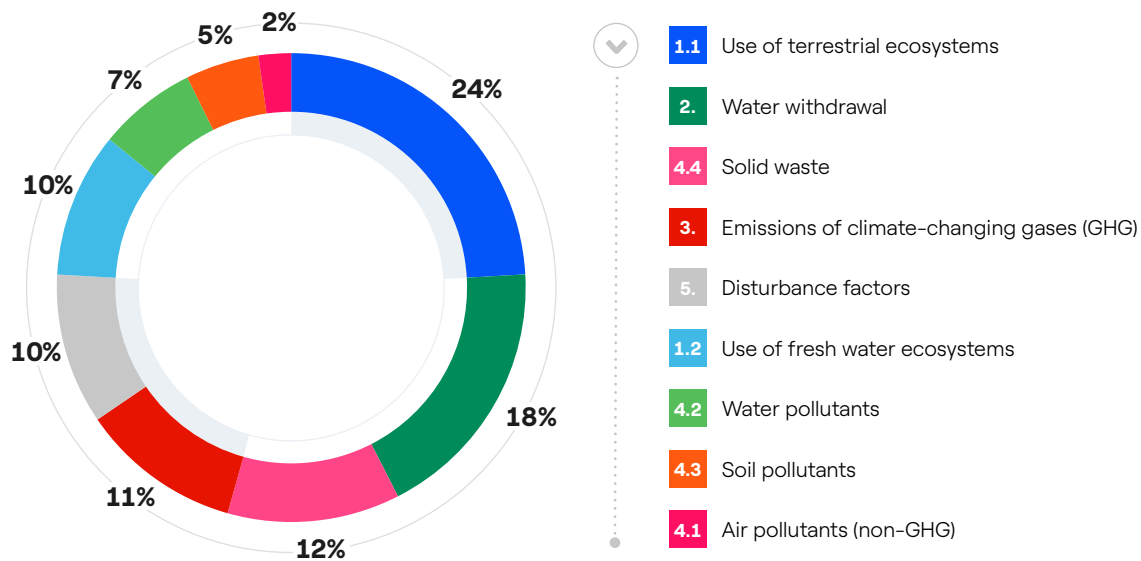
relating to direct activities are associated with the use/modification of terrestrial ecosystems and water withdrawal.

(5) Italy, Spain, Chile, Colombia, Brazil and the United States.

(6) ENCORE (Exploring Natural Capital Opportunities, Risks and Exposure), a tool developed by the Natural Capital Finance Alliance (<https://encore.naturalcapital.finance/en/about>).

(7) Production data Y2022. Grids were given a conventional weighting, being the average of the values associated with the various generation technologies, also by virtue of its transversal function with respect to them.

IMPACT FACTORS PRIORITIZED BY MATERIALITY FOR THE DIFFERENT TECHNOLOGIES, WEIGHTED ACCORDING TO THEIR SHARE OF GENERATION



Dependencies

The **dependencies** found to be material for the main direct activities associated with technologies operated by the Group are attributable to the ecosystem services needed for operation of plants and infrastructures, as summarized below:

1. regulation of the climate and climatic events on which the operation of all assets depends;
2. protection from floods and extreme weather events, which are one of the primary causes of failure and unavailability of renewables plants (photovoltaic and wind) and distribution facilities;
3. availability of use of fresh water, surface water and groundwater for production cycles, mainly in thermo-electric power generation;
4. soil stabilization and erosion control, important for hy-

droelectric reservoirs, renewables plants (photovoltaic and wind), and network infrastructure;

5. conservation of the water cycle, which enables the operation of hydroelectric power plants.

Dependencies on the quality of the water resource and on pollutant filtration capacity were not found to be material for the technologies considered, as reported below.

The table shows the results of the preliminary materiality analysis of ecosystem dependencies conducted at Group level for the various technologies through the ENCORE tool applied to the utility sector, by internally reviewing the scores based on the specific construction and operating solutions adopted by the Group.

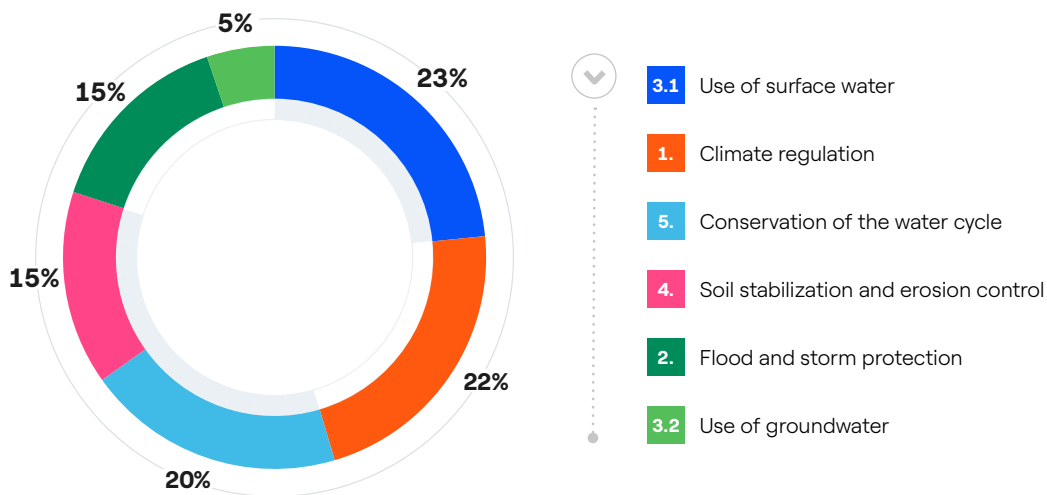
DEPENDENCIES BY TECHNOLOGY	HYDRO	SOLAR	WIND	GEOTHERMAL	COAL	OIL & GAS	NUCLEAR	GRIDS
1. Climate regulation	VM	VM	VM	●	NM	NM	NM	VM
2. Flood and storm protection	M	M	M	M	NM	NM	NM	VM
3.1 Use of surface water	VM	NM	●	M	VM	VM	VM	●
3.2 Use of groundwater	NM	●	●	VM	M	NM	M	●
4. Soil stabilization and erosion control	VM	M	M	NM	NM	NM	NM	M
5. Conservation of the water cycle	VM	●	●	M	M	M	M	●
6. Water resource quality	NM	●	●	NM	NM	NM	NM	●
7. Filtration of pollutants	NM	●	●	NM	NM	NM	NM	●

VM Very Material
 M Material
 NM Not Material
 ● Not applicable

The overall analysis indicates that, considering only the dependencies which are material with respect to the different technologies, each weighed according to its share of production at Group level⁽⁸⁾, the main **dependencies** for the Company are associated with **availability of fresh surface water** and with **climate regulation**, which is also

linked to **conservation of the water cycle**. Enel's decarbonization strategy, which is focused on the phase-out of fossil fuels and the growth of renewables (wind, solar and batteries), reduces impact on the climate by helping to reduce pressure on the ecosystem services on which the Company depends, such as water resources.

DEPENDENCIES ON ECOSYSTEM SERVICES PRIORITIZED BY MATERIALITY FOR THE DIFFERENT TECHNOLOGIES, WEIGHTED ACCORDING TO THEIR SHARE OF GENERATION



The analysis of dependencies also considered scenarios resulting from the predictable effects of ongoing climate change, with respect to each technology and each Country and Region in which the Group is present, in order to define specific adaptation and resilience plans. The occurrence of acute meteorological events and significant chronic phenomena, intensified and accelerated by on-

going climate change, can in fact alter the efficacy of the ecosystem services mentioned above, causing increasing effects on the integrity, operational continuity and correct functioning of the installations. For a more detailed description of the activity carried out and the results of these investigations, please refer to the chapter "Zero emissions ambition and just transition".

(8) Production data Y2022. Grids were given a conventional weighting, being the average of the values associated with the various generation technologies, also by virtue of its transversal function with respect to them.

Analysis of environmental risks and opportunities

The analysis of environmental risks and opportunities associated with Enel's operating activities was conducted with a multifunctional integrated approach. The analysis, started in 2022 and continued in 2023 based on the results of the above-described materiality analysis for impacts and dependencies, led to the identification for each technology of the main operational and economic-financial risks expected for the Company, as well as social and environmental risks, and the identification of the main opportunities in relation to each relevant impact factor and dependency. This preliminary screening analysis led to the definition of an evaluation template for each technology, in which the main critical events of physical type (both acute in the short-medium term and chronic in the long term) and of transitional type (resulting from possible changes in the regulatory, technological, reputational or market framework) were identified with also the main associated risks and opportunities.

Below is a summary of the main **operational and economic-financial risks** identified as material for Enel in relation to the impact factors and dependencies specified above in line with TNFD recommendations:

- reduction or interruption of generation capacity;
- recovery and repair needs;
- authorization delays;
- adaptation and technological innovation needs;

- additional insurance fees;
- loss of competitiveness.

At the same time, this screening phase made it possible to identify the following **main opportunities**:

- improvement of environmental and sustainability performance, such as efficiency in the use of resources and initiatives for the protection, restoration and regeneration of natural habitats;
- business opportunities, linked for example to the offer of nature-positive energy products and services, the launch of new partnerships in sustainable innovation sectors, access to green financing, and strategic choices of commitment and sector leadership, aimed at the economic, reputational and financial growth of the Company.

The analysis of risks linked to the **potential impacts of the Group activities** on the environment reaffirmed the action priorities identified last year and described in the following table. The first column summarizes the impact significance for each category linked to the Group's activity; the second column indicates the level of control, expressed as the maturity of the commitments and targets adopted, and the last column indicates the consequent level of priority in the Group strategy, on a qualitative scale (low, moderate, high, very high).

IMPACT DRIVERS (OR PRESSURES)	IMPORTANCE	LEVEL OF CONTROL	PRIORITY
	• Magnitude • Probability	• Goals • Mitigation plans	
Use of terrestrial ecosystems • Land use • Habitat transformation and fragmentation	High	Moderate	High
Use of natural resources • Water withdrawal	High	High	Moderate
Climate change • Climate-changing gas emissions	Very high	Very high	Moderate
Pollution • Pollutant emissions (non-GHG) • Water and soil pollution • Waste production	High	High	Moderate
Disturbance factors and other • Noise and other • Invasive species	Low	Moderate	Low

The analysis highlighted a “high” and “very high” level of control for risks associated with the use of natural resources and with the potential release of pollutants in environmental matrices, as well as with the consequences of climate change. In fact, for years Enel has already been defining specific improvement targets that make it possible to mitigate the main risks associated with these impact factors in the future.

The **identified intervention priorities** therefore relate to the control of risk associated with **land occupation and the transformation of ecosystems**, and particularly to the use of land and the **transformation of terrestrial habitats**, in relation to which new commitments were made at Group level already last year (see the paragraph “Enel’s commitment to biodiversity”).

Asset prioritization and IRO (Impact–Risk–Opportunity) analysis aggregated by technology

During 2023 the Group moved from a sector analysis to a site-specific analysis aimed at prioritizing **assets in operation** by means of an **IRO (Impacts–Risks–Opportunities)** analysis for the **different technologies⁽⁹⁾** in the **Group’s main countries** and therefore to the **identification of sites (hotspots)** on which to subsequently undertake local analysis of poten-

tial impact characteristics. The ranking of assets was carried out based on the estimated corresponding level of potential impact exerted, which was evaluated starting from the local natural conditions and the site-specific value of one or more impact indicators specific to the plant technology, in accordance with the SBTN indications shown in the figure.



The local **natural conditions** were evaluated starting from the biodiversity indicators already adopted by Enel (see the paragraph “Interaction of assets with biodiversity”) and, more specifically, based on the values of indicators (KPI) relating to the transformation of natural habitats and to the biodiversity significance (presence of protected area, threatened species or critical habitats) in each of the assets, or to their presence in water-stressed areas. The significance of **impact drivers** was instead estimated by adopting threshold values for the main impact KPIs of each technology, said KPIs having been chosen based on the corresponding materiality matrix. In addition to sites with significant impact KPIs, sites deemed relevant were also added in the selection, based on evidence emerging from records relating to the various “Operational analysis and monitoring tools” adopted by the Company, such as records of Environmental Events, records of ECoS (Extra Checking on Site) Improvement Actions, and records of environmental risk analyses in the ISO 14001 management systems.

This enabled the identification of **hotspots**, *i.e.*, sites or areas with operational plants or infrastructures that present the highest potential level of impact/risk, due to the simultaneous occurrence of the established natural and impact conditions of significance. During 2024, these hotspots will

be subject to a subsequent in-depth investigation undertaken according to the LEAP (Locate, Evaluate, Assess, Prepare disclosure) methodology defined by the TNFD, to take into account the specific local context and the interaction of each technological asset with the local natural and biodiversity characteristics, as envisaged for the priority application of the IRO (Impacts–Risks–Opportunities) analysis to complex organizations.

During 2023, based on the asset profiling data described above, a **preliminary impact/risk assessment was also carried out at corporate level**. To this end, an internal methodology was developed that refers to the aggregate values of land occupied by the plants (in ha) of each technology in correspondence with the different levels of potential impact, evaluated based on the concomitant significance of one or more of the previous KPIs relating to natural and impact conditions. Based on the methodology adopted, an estimate of the inherent risk (IR) and the level of control exercised by the organization (C) was then carried out, thus arriving at the final assessment of residual risk (RR)⁽¹⁰⁾. In this preliminary phase of analysis at a qualitative level, a criterion of correspondence (1:1) between potential environmental impact and economic-financial risk for the organization was adopted.

(9) At the time it was not considered a priority to extend this phase of investigation to coal and nuclear technologies. Operational plants that adopt either of these technologies are subject to stringent impact assessment and environmental management requirements and controls by control bodies and competent authorities. In line with the Group’s strategies, a progressive closure or reconversion plan is also envisaged for these plants.

(10) The following residual risk calculation formula is adopted: $RR = IR \times (1 - C)$, in which the inherent risk (IR) represents the potential risk in the absence of management control and prevention actions (C) already implemented by the organization in order to mitigate the risk to residual risk (RR) values deemed acceptable. The following risk judgment scale is applied: <2 Low, <3 Tolerable; <4 Needs improvement; <5 Significant; 5 = High, requiring the adoption of intervention actions for a RR value ≥ 3 .

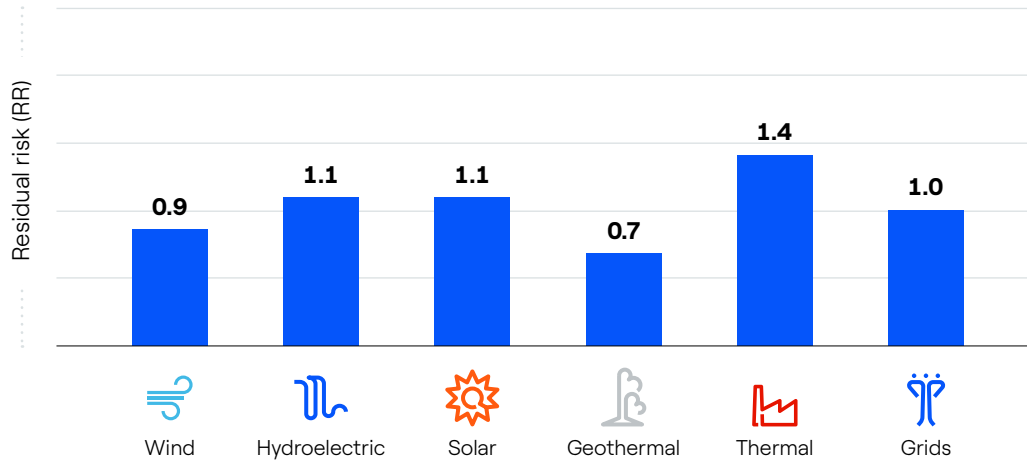
The main results emerging from the preliminary investigations conducted are summarized below:

- the **hotspot sites** represent a **very small area (<5%) out of the total area occupied by operational sites** in the

“core” countries where the Group is present and the **residual risk value therein is always “tolerable” (RR<3)**;

- the **aggregated (weighed averages) residual risk values** for the different technologies **are always “low” (RR<2)**.

RESIDUAL RISK (RR) BY TECHNOLOGY



Preliminary investigations on the supply chain

The analysis of the impacts on nature linked to the supply chain was started in 2023 beginning with an evaluation of the Group’s investment plan, identifying corresponding needs in terms of plant components, equipment and products necessary for their implementation. Starting from this data, the constituent **raw materials** were then determined (unprocessed and as processed/incorporated) along with their consumption. Through the use of public tools and databases⁽¹¹⁾, the analysis then focused on the impacts linked to the life cycle phases (LCA – Life Cycle Assessment) of extraction and refinement of the main raw materials identified, phases which are recognized by SBTN guidelines as

having the most significant potential impacts on nature. At the same time, an investigation was carried out on the relevant countries of origin of raw materials at global level, focusing on countries environmental performance (through indicators regarding protection of biodiversity and water resources, air quality, waste treatment, etc.) and on the average recovery rates of materials in production processes. A preliminary qualitative assessment was then carried out on the impacts on nature linked to the main raw materials in the supply chain, which are potentially critical for the organization from an environmental viewpoint, based on the following (qualitative) formula:



The preliminary investigation conducted in 2023 will be updated in 2024 based on the new Industrial Plan and further revised and integrated based on specific information that will derive from the direct analysis of Enel’s main supply chains and associated product environmental certifi-

cates (EPD – Environmental Product Declaration), with the aim of building a qualitative-quantitative impact matrix that progressively integrates direct data with the public sector data used as the basis for the analysis.

(11) Ref. “Environmental Performance Index” (<https://epi.yale.edu/about-epi>) and LCA analysis using ecoinvent 3 (<https://ecoinvent.org/>).

Operational analysis and monitoring tools

From an operational point of view, in order to identify and minimize environmental risks related to its activities, Enel has equipped itself at Group level with a series of important tools for guidance, investigation and intervention with respect to both the environment and the socio-economic context in order to support the protection of the environment and associated ecosystems in a capillary and synergistic way within the organization.

Group Policy for the classification and analysis of environmental accidents. Environmental accidents are classified according to their type and relevance. This classification is based on their possible impact on the environmental matrices and on any potentially sensitive areas (ecosystems and protected areas), in addition to their negative impact on the organization itself (operational, legal, reputational and financial). In accordance with their classification and magnitude of such accidents, the policy defines communication procedures, the creation of analysis groups with the participation of the Global Functions, cause analysis, and monitoring of subsequent corrective actions and improvements.

Policy for assessing risks and opportunities related to environmental impacts. The policy, which is compliant with ISO 14001:2015 EMS requirements, applies to all operational sites (including those in the process of being decommissioned) and to the Group's staff functions, and provides for the adoption of a single model for the classification and assessment of risks and opportunities linked to impact factors (or pressures) exerted on the environment, through the use of an IT tool called ERA (Environmental Risk Analysis). The analysis process involves evaluating both the interactions of significant operational aspects with various environmental matrices, and mitigation controls adopted for adherence to compliance regulations, as well as voluntary continuous improvement targets; furthermore, taking into account the results of the analysis of any accidental environmental events and periodic environmental visits to the various sites (Extra Checking on Site – ECoS), it allows a high level of integration of continuous control processes between the various levels of the organization and the related prioritization of improvement actions.

Extra Checking on Site (ECoS) Policy. The ECoS is a tool for planning and conducting site visits carried out by cross-divisional teams of experts at the Group's plants and operational facilities, with a view to defining improvement plans and/or sharing best practices. In 2023, the different Business Lines across all the countries in which the Group

operates conducted 89 ECoS with a focus on the environment, far exceeding the defined target (72 ECoS). In the 2024-2026 plan, a minimum target of 50 ECoS per year was proposed due to the deconsolidation of activities in some countries. Also see the chapter "Health and safety of people".

Environmental qualifications and inspections for suppliers of products and services. Enel has adopted a supplier environmental assessment procedure that is structured and homogeneous for the entire Group. The procedure is activated in the qualification phase, for high environmental risk activities, and following important environmental events. Environmental assessments are aimed at verifying the EMS of suppliers as a whole and propose improvement actions to be shared with the supplier. They are also accompanied by environmental inspections conducted at the suppliers' operating sites and which include, where relevant, assessments on specific aspects of biodiversity. In order to standardize inspection standards and obtain a structured and widespread control system, Enel has adopted Group Guidelines on Environmental Inspections, which define the planning criteria as well as methods of execution in the field (see the chapter "Sustainable supply chain").

Consequence Management Procedure. At Group level, Enel has adopted an organizational procedure that defines roles and responsibilities in order to implement *Consequence Management*, as well as actions against its contractors in the event of their involvement in significant environmental events and/or due to low performance on specific environmental issues encountered during performance of the contract.

Stop Work and Emergency Management Policy. At Group level, Enel adopts a policy that allows the risk of environmental impacts to be prevented or minimized, by authorizing all workers to stop activities if there is a potential environmental risk. Furthermore, the Company adopts emergency management plans at global and local level that comply extremely rigorously with the legal requirements and obligations established in the various countries.

Finally, it should be noted that, as part of the analysis of the local context, and forming the basis for the community relations model, an assessment of the main social and environmental risks and opportunities is carried out in order to minimize them and promote socio-economic development. See the chapter on "Engaging communities".

Preserving biodiversity

| 3-3 | 304-1 | 304-4 |

Enel's commitment to biodiversity

Protection of biodiversity is one of the strategic objectives of Enel's environmental policy and is regulated by a specific policy. The policy, adopted in 2015 and updated in 2023 by the Board of Directors, defines the guidelines for all the Group's biodiversity protection initiatives and the principles according to which they operate, aligned with the Kunming-Montreal Global Biodiversity Framework (COP 15).



Enel's roadmap on biodiversity conservation is in line with the Kunming-Montreal global biodiversity framework, embracing the mission of taking action to halt and reverse biodiversity loss by 2030.

In particular, our Company is committed to:

- applying the **mitigation hierarchy principle** in all project phases, avoiding and reducing impacts on high biodiversity areas and ecosystem functions and services, reducing deforestation and habitat transformation; where avoidance is not possible, we strive to minimize adverse impacts, implement rehabilitation and restoration measures and finally, compensating for residual impacts;
- implementing, in the case of biodiversity significant residual impacts for new development projects, compensatory works according to the commitment of "No Net Loss" of biodiversity and "No Net Deforestation", and where applicable to have a Net Positive balance;
- assessing and transparently disclosing impacts,

dependencies, risks and opportunities on biodiversity along operations, supply and value chains, setting goals and targets on priority issues;

- promoting biodiversity and nature-based solutions integration into business solutions for customers and urban ecosystem, boosting related environmental and social positive impacts;
- collaborating with public administrations, research centers, environmental and social associations and international stakeholders, as partners in the conservation, restoration and sustainable use of resources, fostering new innovative and systemic approaches and synergies while respecting the rights of indigenous peoples and local communities;
- monitoring and reporting progress towards the achievement of local and global goals and targets in alignment to main international standards and in a transparent and responsible approach, for accounting performances on biodiversity and natural capital management;
- promoting environmental awareness towards workers and stakeholders, to valorize biodiversity conservation and responsible use of natural resources.

In its Sustainability Plan published in the 2022 Sustainability Report, Enel has set out its commitment to Biodiversity, setting itself clear targets up to 2025 and 2030.

Enel's commitment

Enel undertakes to achieve **No Net Loss of biodiversity** for new infrastructures from 2030, commencing its adoption on selected projects in areas of high biodiversity importance beginning 2025. To achieve this goal, Enel will work in accordance with the principles of the Mitigation Hierarchy to avoid, minimize and reverse impacts on natural habitats or species that are threatened, endemic or restricted in range.

In addition, Enel is committed to conserving forests and, if deforestation cannot be avoided, will reforest areas of equivalent value in line with the principle of **"No Net Deforestation"**.

Enel will not build new-generation infrastructures in areas designated as UNESCO World Heritage Natural Sites.

To implement its commitment, Enel has developed a methodology, with the technical and specialist support of a leading consultancy company, for the site-specific adoption of the 'No Net Loss' (NNL) principle on biodiversity. During 2023, the methodology was tested on renewable power generation plants, both those in the design phase and those in operation, which enabled the metrics for assessing impacts and possible compensation to be fine-tuned. As regards grids, the methodology has been

applied to some existing lines and testing is underway on the design phase of a new medium voltage overhead line in an area of particular natural interest, the authorization process for which is underway.

This methodology, which is being implemented in the operational processes of the Business Lines, will be progressively applied – depending on the type of habitat – to projects in the renewables and networks development pipeline between 2025 and 2030.

No Net Loss: first results of the implementation

Guayepo III project: the 200 MW solar plant will be built in the Caribbean region of northern Colombia (Municipalities of Sabanalarga and Ponedera – Atlántico Department), and will cover an area of approximately 500 ha, of which just over 100 ha are in natural areas. The absence of interference with critical habitats will be guaranteed, in full compliance with standards, through on-site monitoring to exclude the possibility of impacts on priority animal species identified within the Biodiversity Action Plan (BAP), such as the Río Cesar white-fronted capuchin (*Cebus cesareae*). Unavoidable impacts on natural habitats will be more than compensated through actions already indicated in the Environmental Impact Assessment presented to the Ministry of Environment and Sustainable Development in 2022, which envisages the restoration of 557 ha of natural and semi-natural areas within the tropical dry forest ecosystem. This area **is more than double what was**



calculated by applying the quantitative No Net Loss methodology developed by Enel. The project will therefore have a **Net Positive impact**. Numerous compensatory actions are included in the project, based on an active restoration and rehabilitation approach, including: expanding existing vegetative areas, soil restoration, installing perches and construction of shelters and dens, and planting native herbaceous, shrub and tree species associated with water bodies, as well as other actions for the sustainable use of natural resources.

Interaction of assets with biodiversity

Enel measures its environmental performance on aspects of biodiversity in a transparent and responsible way, both in the construction of new plants and during the operation of its sites. For this reason, in 2021 the Company defined a set of specific indicators, which are updated annually, to

measure the impacts generated and monitor the effectiveness of action plans.

Land occupation: the area of land occupied by assets. This is a general indicator, as it does not provide an indication of the characteristics of the soil habitat.

Land occupation – Power Generation Assets

During 2023, important work was carried out to map the sites, strengthening the criteria and representation on the Geographic Information System (GIS), which led to the re-

vision of land occupation data for power generation assets, particularly for wind and hydroelectric assets.

Land occupation (Hectares - ha) – Power generation assets and technology

Technology	2023	2022 ⁽¹²⁾	2023-2022
Solar	33,403	29,899	3,504
Wind	11,768	11,408	360
Hydroelectric	202,446	202,446	-
Geothermal	442	442	-
Thermal	6,098	6,318	220 ⁽¹³⁾
Total	254,157	250,513	3,644

Land occupation (Hectares - ha) – Power generation assets and country

Country	2023	2022	2023-2022
Italy	20,154	20,147	7
Spain	26,846	25,361	1,485
Latin America ⁽¹⁴⁾	191,769	189,424	2,345
Rest of the world ⁽¹⁵⁾	15,388	15,581	193
Total	254,157	250,513	3,644

During 2023, the land occupation of renewable power generation assets increased compared with 2022 by **3,864 ha**, of which **3,504 ha (91%)** related to the construction of new photovoltaic plants, and the remaining

360 ha (9%) to wind farms. For thermoelectric power, the decrease in physical land occupation compared with 2022 of **220 ha (-3.5%)** is due to the sale and disposal of some plants.

(12) Land occupation relating to plants was updated by reviewing the boundary delimitation of the assets.

(13) The reduction in physical occupation of thermoelectric plants is due to the decommissioning of some plants during 2023.

(14) Argentina, Brazil, Chile, Colombia, Costa Rica, Guatemala, Mexico, Panama and Peru. All assets operating in 2023 are included, including those that left the Company's portfolio during the year

(15) Australia, Canada, Greece, India, Morocco, Portugal, Romania, South Africa, USA and Zambia. All assets operating in 2023 are included, including those that left the Company's portfolio during the year.

Land occupation – Grid Assets

The data on land occupation⁽¹⁶⁾ of the distribution infrastructure is calculated for High Voltage (HV) and Medium

Voltage (MV) lines, and for primary and secondary transformer substations.

Land occupation – Grid assets and technology

Technology	Hectares (ha) ⁽¹⁷⁾	km
Primary and secondary substations	2,089	-
High Voltage Lines	52,053	32,232
Medium Voltage Lines	434,748	659,270
Total	488,890	691,502

Land occupation – Grid assets and country

Country	Hectares (ha)	km
Italy	287,679	350,755
Spain	98,755	132,506
Latin America ⁽¹⁸⁾	102,456	208,241
Total	488,890	691,502

Transformation of natural habitats: measures the area of land occupied in hectares (ha), classified according to the IUCN⁽¹⁹⁾ habitat categories on which the new assets were built in the reporting year. It therefore represents a specific indicator of the impact on habitats that have been transformed to build plants.

Power generation plants that entered operation in 2023 occupy 3,864 ha of land, of which **2,113 ha (55%)** relate to **habitats that have already been modified** and the remaining **1,751 ha (45%)** to **natural habitats**. In **2022** the overall land occupation relating to new plants was 11,807 ha, of which **5,770 ha** was in **natural habitat**, amounting to **49%** of the total. This reduction, in absolute and relative value, is in line with the **mitigation hierarchy** principle adopted by Enel, which involves analyzing the impacts on nature of the site during its development phase, avoiding, where possible, the selection of sites in natural habitats, and instead

favoring modified habitats. Of the natural habitats impacted, only **183 ha** were **forest habitat**.

As far as the distribution network is concerned, almost all HV and MV lines were built in the 1970s, mainly in urbanized areas. Around 70% of the infrastructures built to date are situated in cultivated areas, grazing land and urban areas; only the remaining 30% of the infrastructures have impacted natural-type habitats, of which only 9% are forest-type habitats.

Presence of assets in protected areas (GRI 304-1): mapping was carried out for all power generation assets within Enel's entire portfolio, and for the second year also for grid assets, in the main countries⁽²⁰⁾, to assess the presence of assets in UNESCO World Heritage Natural areas and IUCN I-IV classified protected areas.

Presence of power generation plants – by technology⁽²¹⁾

Technology	total no. of infrastructures	no. of infrastructures in protected areas	Presence in protected areas (ha)	Presence in protected areas as % of the total occupied by technology
Solar	190	4	32	0.10
Wind	292	9	119	1.01
Hydroelectric plants	601 ⁽²²⁾	90	5,611	2.77
Geothermal plants	40	-	-	-
Thermoelectric plants	84	5	34	0.55
Total	1,207	108	5,796	2.28

(16) Land occupation relating to assets is in the process of being updated.

(17) For grids assets, land occupation is calculated using PUC (Portale Unico Cartografico – Single Cartographic Portal) for primary and secondary substations it is reported as the surface area occupation (variable depending on the technology), whereas for MV and HV lines it is calculated as the geometric projection on the ground of their length for the width of the corresponding buffer zone, which varies depending on the technology.

(18) Chile, Peru, Colombia and Brazil.

(19) IUCN – International Union for Conservation of Nature (<https://www.iucnredlist.org/resources/habitat-classificationscheme>).

(20) Italy, Spain, Chile MV, Peru, Colombia and Brazil.

(21) The data reported on GIS has been revised and optimized, leading to adjustments in the value of hectares (ha) and the number of plants compared with last year.

(22) The number of hydroelectric plants, with related hydroelectric basins and auxiliary systems, is declared.

Presence of power generation plants – by country

Country	Hectares (ha)	% in protected areas out of the total occupied in the country
Italy	3,799	18.85
Spain	1,950	7.26
Rest of the world	32	6.12
Chile	15	0.03
Total	5,796	2.28

The number of power generation plants situated within protected areas (IUCN I-IV) **remains unchanged since 2013**, as no new plants have been built in these areas. The presence of power generation assets in protected areas mainly concerns hydroelectric plants that were predominantly built in the 1970s or earlier (in many cases before the creation of protected areas), both in Europe and in Chile, and are managed according to basin management plans shared with local authorities. Projects relating to

these plants notably include the ENDESA-bats multi-year project for the study and monitoring of bats, which has been developed voluntarily in the autonomous provinces of Catalonia, Galicia, Andalusia and Aragon, and the project carried out in the area of the Hautes Pyrénées Natural Park, in conjunction with the Brown Bear Foundation (FOP), aimed at restoring habitats by planting small flora species to provide food for brown bears and their cubs.

Presence of distribution infrastructures – by technology

Technology	Hectares in protected areas (ha)	% in protected areas out of the total ⁽²³⁾ occupied by the asset
Primary and secondary substations	22	1.1%
High and medium voltage lines	14,179	2.9%
Total	14,201	2.9%

The countries in the Enel Grids portfolio with the highest proportion of assets present in protected areas are Spain, Italy and Brazil. In cases where the infrastructure falls within a protected area, Enel creates the best solutions to miti-

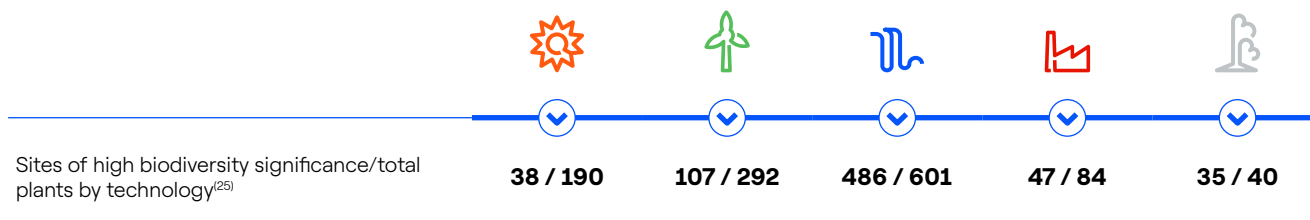
gate impact on the surrounding environment, also considering the need to comply with its service obligation. Below are some examples of mitigation projects currently underway for infrastructure that falls within protected areas.

TECHNOLOGY	SITE	LAND OCCUPATION (HA) IN PROTECTED AREAS	TARGET SPECIES AND CONCERNED PROTECTED AREA	HABITAT	BIODIVERSITY PROJECTS
Relocation of existing HV line	Colombia - Zipaquirá-Ubaté Line	6.7	Birds: <i>Anisognathus igniventris</i> , <i>Eriocnemis vestita</i> ; Protected area: Distrito de Manejo Integrado Páramo de Guargua y Laguna Verde	Forest	Installation of flight diverters in humid areas and natural habitats as a result of a monitoring study on local bird species. In-depth focus follows
New MV line	Spain - Arties Lag	1	Birds: <i>Tetrao urogallus</i> Aigüestortes National Park	Forest	Installation of collision avoidance devices using drones, and monitoring campaign

(23) Out of the total of HV and MV lines in Italy, Spain, Chile MV, Peru, Colombia and Brazil.

Biodiversity Significance⁽²⁴⁾: this qualitative indicator makes it possible to classify power plants based on the importance of the area in which they are built, and is based on the value of biodiversity potentially present in the vicinity of said area (high/medium/low). The methodology therefore makes it possible to identify priority sites for the protection of biodiversity in order to ensure proper man-

agement to mitigate potential impacts. Also in this case, it should be noted that most sites of high significance relate to hydroelectric plants, which are generally infrastructures built in mountain areas and present in the locality for many years and in many cases before the creation of protected areas, the classification of critical habitat or the identification of threatened animal species.



In 2023, **only one power plant**⁽²⁶⁾ **was built in areas with high biodiversity value, 3 fewer** than in 2022. Although an initial analysis, based on literature data, suggested the potential occurrence of threatened species, monitoring campaigns carried out during the environmental impact assessment did not confirm their presence on the ground. For this reason, validation of the categorization of sites as high, medium or low significance should be reviewed against the results of site environmental and social impact assessments, BAPs or other site management plans to confirm the biodiversity significance score.

Presence of endangered species near plants/assets (GRI 304-4): knowledge of the potential presence of endangered species in the proximity of assets is important in order to evaluate actions aimed at reducing the risk of interference by Enel assets. This type of mapping is carried out for all infrastructures for which biodiversity projects are developed that relate to flora and fauna species mapped in the IUCN Red List. The summary of this mapping is presented in the following infographic table of biodiversity projects.

(24) To identify areas of high biodiversity importance, the following general criteria are considered: 1) Protected areas (UNESCO World Heritage Natural Sites and IUCN I-IV); 2) Critical habitats as defined by IFC Performance Standard 6; 3) Presence of protected species, according to the methodology developed and adapted by UNEP-WCMC, Conservation International and Fauna & Flora International ("Biodiversity indicators for site-based impacts", 2020).
 (25) The number of plants in areas of high biodiversity importance has been modified following the updating of thematic maps and the refinement of calculation methodologies (e.g., for hydroelectric plants, plant auxiliaries have been merged with the generation island and related basins).
 (26) "Baco" photovoltaic system built in Central America (Panama) found to be in an area of high biodiversity value due to the potential presence of protected species, according to literature data.

- Critically Endangered (CR)
- Endangered (EN)
- Vulnerable (VU)
- Near Threatened (NT)
- Least Concern (LC)

Country	No. of projects	PROJECT TYPE							Group	NO. OF SPECIES ON THE IUCN RED LIST					Total
		Mandatory	Voluntary	of which VOLUNTARY	Conservation (species)	Monitoring	Restoration (habitats)	Research and other purposes		CR	EN	VU	NT	LC	
Argentina	1	1	-	0%	-	-	-	1	Flora	-	-	-	-	-	-
Brazil	45	36	9	20%	10	22	12	1	Birds; Bats; Terrestrial fauna and Flora	1	13	33	26	292	365
Chile	18	7	11	61%	2	8	3	5	Terrestrial fauna and flora	-	-	1	2	46	49
Colombia	20	12	8	40%	9	7	2	2	Birds; Bats; Terrestrial fauna and flora	-	2	3	4	85	94
Guatemala	5	4	1	20%	-	5	-	-	Terrestrial fauna	2	2	14	12	-	30
Iberia	45	13	32	71%	28	3	6	8	Birds; Bats; Terrestrial fauna and flora	-	2	10	8	27	47
Italy	23	7	16	70%	17	3	3	-	Birds; Bats; Terrestrial fauna; Plants; Fish	2	14	14	-	15	45
Mexico	6	5	1	17%	-	6	-	-	Birds; Bats; Terrestrial fauna and flora	-	-	3	2	77	82
Panama	1	-	1	100%	-	1	-	-	Flora	-	-	-	-	-	-
Peru	5	3	2	40%	-	5	-	-	Birds; Bats; Terrestrial fauna	-	-	-	-	24	24
Rest of the world	14	5	9	64%	5	6	3	-	Flora; Bats; Birds	-	5	3	2	59	69
Total	183	93	90	49%	71	66	29	17		5	38	81	56	625	805

Assessment of ecosystem services: among the approaches that have been developed for some years in the scientific community to fully describe the contribution provided by biodiversity and nature, one relates to the optimization of ecosystem services. In this area, Enel continues to de-

velop studies to verify how this approach facilitates better environmental management of its infrastructures in order to maximize the benefits for the environment and for local communities.

The biodiversity action plan

In 2023, **183 projects** were carried out to protect species and natural habitats at **operational plants**, of which 57 were developed in partnership with government agencies and non-governmental organizations and universities, for a total investment of **10.8 million euros**. The projects were carried out in all Countries and Regions and mainly concern operational renewables plants and distribution networks. The projects included **habitat recovery activities covering 8,343 ha**, most of which are related to ecological restoration and reforestation, mainly in Brazil, Chile, Colombia, Italy and Spain.

In addition, in 2023 a further **60 projects** relating to plant construction sites were carried out, mainly in Brazil, Chile, Colombia, Italy and Spain, targeted at the conservation and

Measures taken to reduce impacts

Enel has consolidated experience in managing and protecting biodiversity near its production sites starting from the site design and construction phases; particularly in the past few years, activity has focused on managing impacts near to renewable plants and distribution networks, in line with the Group's decarbonization strategy.

The Group's internal Biodiversity Guidelines define the principles and procedures for managing impacts on biodiversity during the entire life cycle of plants, from the development phase to operation and decommissioning, through the application of the **Mitigation Hierarchy** in the various phases of the life cycle. For the Group's plants and installations that have been present in the local area for a long time, environmental protection and monitoring action plans are also adopted.

For the development of new infrastructures, the risk to biodiversity is assessed in an integrated manner right from the **feasibility** phase, starting with the selection of the site of interest, which involves an assessment of the type of habitat, prioritizing habitats that do not present environmental criticalities, and considering geographical proximity to protected areas, habitats that are critical or important for biodiversity, as well as the potential presence of endangered species in the area of interest. To support the definition of local action plans for the mitigation of any risk identified, Enel adopts a consolidated process of stakeholder engagement, which involves continuous dialogue in synergy with all stakeholders – local communities, competent authorities and research institutes – with a view to supporting increasingly sustainable business for the economy, nature and people.

In the **construction** of new plants, specific action plans are also adopted to check the effectiveness of the actions undertaken and the occurrence of any potential impacts, including at a later stage after the works have started. For some

183

PROJECTS FOR THE PROTECTION OF SPECIES AND NATURAL HABITATS IN OPERATIONAL SITES

8,343 ha

AREA COVERED BY NATURAL HABITAT RESTORATION PROJECTS (related to projects carried out in 2023)

monitoring of native species impacted, amounting to an overall capital expenditure of **9 million euros**.

Examples of measures to mitigate impacts on biodiversity, by way of implementation of the relevant policy, are available in the sustainability section of the www.enel.com website at the following link: <https://www.enel.com/investors/sustainability/strategy-sustainable-progress/biodiversity>.

plants, the development of mitigation plans together with local stakeholders is also envisaged, including reforestation. Once the infrastructure is **commissioned**, protection of biodiversity becomes an integral part of environmental management, through periodical monitoring for the checking of impacts highlighted in the authorization phase, as well as the continuous assessment of potential impacts that could occur later. This is also the moment where the plant consolidates its relationship with the local area and where initiatives are developed, such as voluntary projects to safeguard local species and improve habitat conditions, based on knowledge of the environment surrounding the site. The results of monitoring at the local level are communicated and analyzed at global level by means of internal tools, allowing the identification of general issues that need to be addressed with improvement plans or projects at Group level.

The main impacts on biodiversity during operations linked to technologies are:

- **wind plants:** impacts related to collision with birds and bats. Among the various initiatives aimed at reducing interference, a project has been developed in synergy with the Group's Innovation unit to monitor and assess the performance of detection and deterrent systems available on the market, in order to evaluate their implementation both in already operational plants and in new projects under development;
- **hydroelectric plants:** interference with fish and soil erosion. Among the initiatives, fish repopulation actions for ecosystem and species recovery are highlighted, such as the restoration or improvement of fry reproduction or growth areas. Furthermore, to control soil stability and improve habitat conditions, native species have been planted directly in the reservoir or near to its banks, in addition to the implementation of programs

to monitor erosion and degradation of the banks;

- **solar plants:** impacts related to the occupation and possible transformation of habitats. To mitigate their impact, interventions are planned to improve habitat conditions for the benefit of species present in the affected site. Also important to note is the increasing development of agrivoltaic plants, which provide spaces between the rows of photovoltaic modules for planting aromatic and medicinal herbs, food crops and nectar flowers that promote the establishment of pollinator species;
- **distribution networks:** risk of collision and electrocution of birds with overhead lines. In this regard, starting from the design phase to the operation and maintenance

of existing sites, and according to the biodiversity aspects associated with the site, Enel adopts mitigation measures including the installation of collision avoidance devices at regular intervals along overhead power lines, as well as the isolation of live parts. To reduce the fragmentation of forest habitats caused by distribution networks, and mitigate their impact on fauna, interventions involving the installation of pathways for arboreal fauna have also been created, such as for example, aerial crossings for monkeys in Brazil (São Paulo). Additionally, actions are taken to mitigate the impacts during the construction phase, including the relocation of terrestrial flora and fauna to protected areas.



INSTALLATION OF COLLISION AVOIDANCE DEVICES COLOMBIA



The main objective of the project, developed as part of Modernization works on the two high voltage lines of Muña-Sauces and Zipaquirá-Ubaté in Colombia (Cundinamarca region), is to **reduce the impacts deriving from birds colliding with power lines.**

In particular, a total of approximately **240 collision avoidance devices** were installed with an average spacing of 15 meters and located in natural habitats, sites of naturalistic interest and wetlands.

The sections of line to be fitted with collision avoidance devices were identified by field monitoring based on direct sightings, indirect observation in the habitats surrounding the lines, identification of species based on birdsong, and nest searches. The monitoring carried out in the case of the Muña-Sauces site led to the identification of **more than 140 bird species** that were potentially impacted by collision with power lines, and almost 1,400 individuals detected using the transect or net capture method. In the case of the Zipaquirá-Ubaté site, **more than 50 bird species** were identified.



CONSERVATION OF BIRD SPECIES

> 140

BIRD SPECIES IDENTIFIED

around 240

**COLLISION AVOIDANCE DEVICES
INSTALLED**





PROYECTO UROGALLO SPAIN



In recent years, populations of **capercaillie** (*Tetrao urogallus*, Urogallo in Spanish), a large bird linked to forest habitats, where it settles and nests, have suffered a sharp decline in many European countries. This decline has also occurred in Spain, specifically the regions of Catalonia and, more precisely, the central Pyrenees (2000–2016, *Estudio Declive poblacional del Urogallo en los Pirineos Centrales - Fundación para la Conservación del Quebrantahuesos y Universidad de Valencia*). The Pyrenean subspecies (*Tetrao urogallus aquitanicus*) is listed in the **“Vulnerable”** category of the Spanish catalogue of **species threatened with extinction** due to its sharp population decline over the last two decades. The **risk of collision with overhead power lines** is one of the main threats that are causing a reduction in the population, in addition to pressures linked

to unsustainable forest management, an excessive increase in medium-sized predators and wild herbivores (deer and fallow deer), and high tourist footfall in forest areas.

It is within this context that the **“Project for capercaillie conservation in the Pyrenees”** was launched, involving a partnership between **Edistribución**, Paisatges Vius (an NGO) and the **Department of Biodiversity of Catalonia**. In particular, the involvement of Edistribución resulted in the identification of the main sections of critical MV lines within the Alt Pirineu Natural Park, and the subsequent installation, using drones, of **collision avoidance warning lights**. Edistribución is also involved in **awareness-raising actions** to protect the species, by **monitoring and communicating** the main results achieved by the project.



SAFEGUARDING AND TRANSFER OF EPIPHYTIC SPECIES COLOMBIA



This project in Colombia, implemented as part of the reconstruction of the existing Zipaquirá-Ubaté transmission line, is a specific example of how environmental protection is being applied in areas with potentially high biodiversity value. In particular, 27 plant specimens (epiphytes) subject to direct impact from construction sites have been safeguarded, with the aim of **reducing impacts on plant species of conservation interest**.

Of the 27 specimens safeguarded, 20 belong to the *orchidaceae* family and 7 to the *bromeliaceae* family. Specifically, the action involved **mapping specimens and subsequently relocating them to favorable areas** that are similar to the species' original environment. Furthermore, periodic **monitoring and maintenance activities are planned for the three years following the relocation**, to improve the survival rate of the species.



INSTALLATION OF ARTIFICIAL NESTS FOR MARKHAM'S STORM PETREL CHILE



In 2021 Enel Chile launched an important biodiversity project in the **Atacama desert** to install artificial nests for Markham's storm petrels, an endangered species according to national legislation and listed as threatened in the IUCN Red List.

Markham's storm petrel (*Hydrobates markhami*) is a small bird that inhabits the open ocean for most of its life. It is a long-lived species, sensitive to climate alterations during the reproduction and conservation of its eggs, of which it lays only one per season. Four species breed in northern Chile, between the regions of Arica and Parinacota and northern Coquimbo. In recent years, the increase in the development of mining and energy projects in breeding sites has posed an increasing threat to the conservation of this

species, sometimes causing the destruction of its nesting habitat. Enel, in collaboration with the **Chilean network of bird and wildlife observatories (ROC)**, has developed a project dedicated to creating artificial nests to promote the reproduction of the species; furthermore, in 2022 the Company completed a **study on the reproduction of Markham's storm petrels** in the Atacama desert and analyzed international experiences on the use of artificial nests for the birds' reproduction. Subsequently, during 2023, **nests were created and installed**, measures (acoustic and olfactory) were implemented to attract specimens and **monitoring campaigns** were carried out, during which footprints of Markham's storm petrels were found near to three artificial nests.



CONSERVATION AND REPOPULATION OF MARBLE TROUT IN BERGAMO WATERS ITALY



Enel is also committed to ensuring **river connectivity** in order to protect the species. There are many **repopulation projects** developed in aquatic ecosystems. In particular, a project was launched in Italy during 2023, aimed at conserving marble trout in the Brembo river, which is affected by hydroelectric power generation at Enel Produzione Italia plants.

The project involves **monitoring campaigns** on the species with a view to selecting specimens for the artificial reproduction phase, which starts with incubation and proceeds to egg hatching, rearing and growing the fry in tanks and finally releasing the adult fish into the Serio river basin.

Biodiversity opportunities

Integration of nature-based solutions into Enel X Global Retail

During 2023 Enel X Global Retail worked to promote an **integrated approach wherein the services and products in its commercial offering are combined with Nature Based Solutions (NBS)**, namely the set of techniques and design approaches that use nature and the processes inspired by it to provide integrated services aimed at increasing the resilience of the city and territory to climate change, mitigating the microclimate, air quality and generally improving quality of life. This opportunity interests both industrial customers and public administrations, and therefore involves both urban and extra-urban spaces, based on a philosophy of approaching sustainable development challenges inspired and supported by nature.

In order to promote NBS, Enel X Global Retail has developed **the Enel X NBS Biodiversity Handbook** and **the Enel X Urban Biodiversity Scoring Model**, which respectively make it possible to identify NBS solutions that can be associated with the different business solutions of Enel X Global Retail and then to evaluate the positive impacts generated across the three dimensions of climate, natural resources and human experience.

The model created enables the evaluation and promotion of the integration of nature-based solutions in both B2B and B2G projects. Additionally, it aims to assist customers in evaluating their nature-related performance, guiding them in the adoption of integrated solutions.



In Chile, as part of World Environment Day, the **Enel X forest** was inaugurated in partnership with the Reforestemos Foundation. The initiative involves **planting native trees in degraded territories** affected by forest loss. The project involved the various Business Lines with a view to raising awareness about the importance of forests and the need to restore and protect them. Specifically, together with the Reforestemos Foundation, the initiative “1+1, a tree for every electric bus” was developed, which resulted in the planting of 1,540 native specimens in the forests of southern Chile, equivalent to the number of buses on the streets of Santiago at the end of 2023. This project brought about an estimated reduction in atmospheric emissions of approximately 540 tonnes of CO_{2eq}⁽²⁷⁾.



1,540
NATIVE SPECIMENS PLANTED
IN THE FORESTS OF SOUTHERN
CHILE

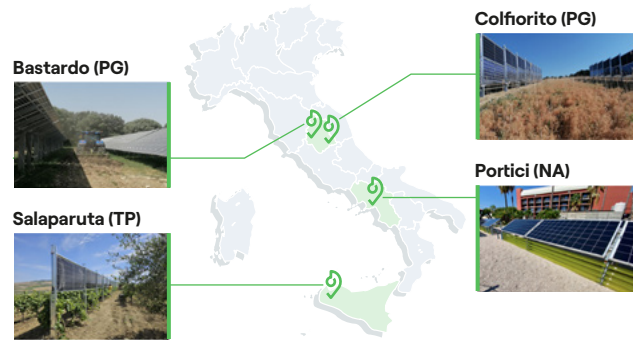
EQUIVALENT TO THE BUSES DRIVEN
ON THE STREETS OF SANTIAGO
AT THE END OF 2023

(27) Value estimated according to the methodology used by Fundación Reforestemos.

Agrivoltaics: from research to large-scale implementation

The construction of **agrivoltaic systems** is a concrete example of integration between business needs and nature. In 2021 Enel Green Power launched several pilot projects in **Spain, Greece and Australia**, together with **local stakeholders and strategic partners**, to evaluate the feasibility and synergistic effects of integrating agrozootechnical activities and utility-scale ground-mounted photovoltaic systems. The results were particularly interesting, including an **increase in agricultural yield from 20 to 60% and a decrease in water consumption for irrigation from 15 to 20%**, thanks to the improvement of microclimate conditions, and the reduction of thermal stress, especially during the summer months (evaluated over an observation period of 2-3 harvest cycles).

In 2023 Enel Green Power launched an important initiative in Italy, involving universities, cutting-edge research centers, startups and agricultural businesses, which saw the launch of four “Agrivoltaic Open Labs”, which are full-fledged **open-air laboratories for testing innovative technologies**, both photovoltaic and those integrating sustainable agricultural activities, and **promoting the conservation of biodiversity and**



the improvement of ecosystem services. Indeed, through the implementation of specific habitats to host colonies of pollinators, as well the adoption of sustainable practices for management of crop cutting, the initiative is improving the living conditions of species threatened by climate change. Following results obtained from the pilot plants, Enel Green Power started construction on three sites of **agrivoltaic plants in Italy**, of which one, the largest in Italy, located in Tarquinia, outputs approximately 167 MW, while the other two sites are still under construction and have a total capacity of approximately 70 MW.



AGRIVOLTAIC OPEN LAB ITALY

In the Agrivoltaic Open Labs of Bastardo (Umbria), several tests have been started on a ground-mounted solar plant of approximately 1 MW, consisting of fixed structures equipped with **bifacial modules**.

- 1. Planting aromatic species** (thyme, sage and rosemary) between the rows of photovoltaic modules and in a control area, **to evaluate their synergistic effects on power generation, agricultural yield and water saving.**
- 2. Installing hives** for the production of “solar honey” and educational activities aimed at young beekeepers and raising awareness among school children and families.
- 3. Testing natural solutions to restore and revitalize soils**, using combinations of plants (alfalfa, sainfoin, fenugreek, chicory) to protect the soil from erosion, improve water absorption and protect microbial communities.



- 4. Monitoring** said solutions by means of solar, agronomic, environmental and biodiversity sensors, to monitor the health of pollinator colonies.



Responsible use of water

| 3-3 | 303-1 | 303-2 | 303-3 |

The responsible use and conservation of water resources are fundamental guarantees for the protection of natural habitats and for the wellbeing of the communities that, together with Enel, benefit from the ecosystem services provided by these resources.

The preliminary analysis of environmental risks and opportunities, particularly highlighted the materiality, for some electricity generation technologies, of impacts linked to the use of water resources, above all fresh water and particularly in areas with high water stress, where competition between natural and human needs is greatest. Specifically, the **main impacts** are above all linked to water withdrawals for thermoelectric and nuclear generation, mostly for the cooling of thermal cycles and for operating atmospheric emission abatement systems. In these plants, overall water requirements for industrial purposes are covered, where available, through withdrawals from so-called “non-scarce” sources (mainly including sea water, which is used as-is in open cycle cooling processes and subjected to desalination to obtain industrial water) and, where necessary, from “scarce” sources, represented by surface water, groundwater and potable water. To minimize these withdrawals, in addition to maximize the recovery of internal wastewater, Enel uses, where available, treated wastewater supplied by water management consortia.

Efficient use of water resources

In 2023 the **total withdrawal** of process and closed-cycle cooling water⁽²⁸⁾ was approximately **55.0 x10³ ML**, a significant reduction (**-28%**) compared with **2022 data (76.0 x10³ ML)** due to the reduction in thermoelectric and nuclear power generation, and particularly that of coal plants called into production in recent years to a

The **main dependencies** are instead attributable – in addition to the needs of thermal plants – to hydroelectric plants, which depend for their operation on the water cycle which, through rainfall and melted snow, constantly replenishes surface watercourses.

Risk analysis related to water also took into account possible scenarios involving **changes to the relevant regulatory framework** and the **future availability of the resource**. Regarding the first aspect, the active role played by Enel in the development and application of national and international reference environmental standards allows the Company to avoid possible misalignments or violations by adopting improvement actions inspired by the best available techniques. Regarding the second aspect, through the development of medium and long-term meteorological and climatic scenarios, especially those linked to the effects of climate change – such as the onset of chronic precipitation variability or of waters temperature rise – the change in availability and expected quality of the water resource in basins of interest to the Group was assessed. Producibility maps for Enel plants highlighted that, on average, no significant changes are expected for the period 2030–2050 compared with available historical data.

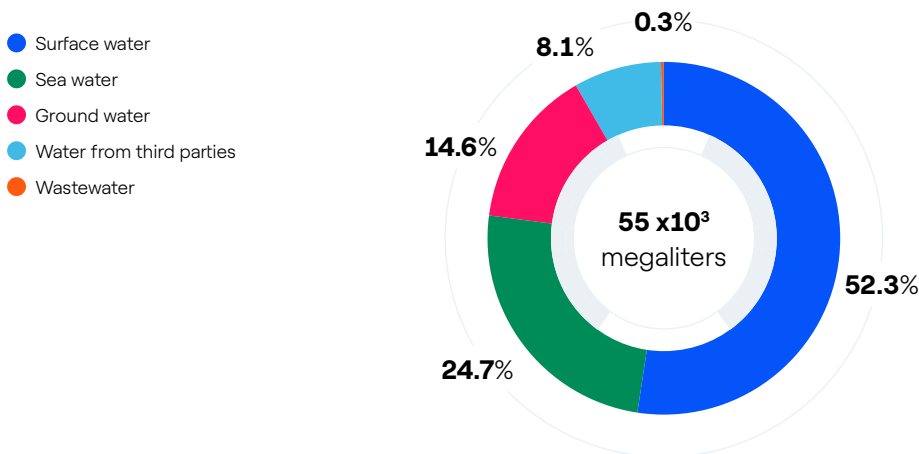
greater extent in response to the international energy contingency. As regards **specific water requirements**⁽²⁹⁾, in **2023** it was **0.23 l/kWh**, slightly down on **2022**⁽³⁰⁾ (**0.27 l/kWh**), again thanks to the reduced use of conventional thermal plants and the increase in power generation from renewable sources.

(28) The waters used for open cycle cooling are reported separately among the environmental indicators. They are not taken into consideration here in assessing the efficient use of the water resource, as they are returned in full to the natural receptors, without substantial changes in quality, apart from a slight increase in temperature, subject to authorization and continuous control in order to guarantee the absence of measurable impacts on exposed ecosystems.

(29) The water requirement is constituted by all the water withdrawal quotas from surface (including recovered rainwater) and groundwater sources, by third parties, from the sea and from wastewater (quota supplied by third parties) used for process needs and for closed-cycle cooling, except the quota of seawater discharged back into sea after the desalination process (brine). This latter item (brine) contributes to the total quota of withdrawals.

(30) Value also recalculated to take into account the reclassification of the cooling cycles of some nuclear power plants in Spain.

WATER WITHDRAWAL BY SOURCE



Enel is constantly committed to progressively reducing the specific water requirement for its plants and assets, through the efficient use of water in existing thermal plants, the evolution of the energy mix towards renewables, and the progressive reduction of generation from fossil fuels. Among the efficiency measures, particular attention is paid to maximizing the **recovery of process wastewater** from treatment plants and to increase the efficiency of cooling systems and evaporative towers, by upgrading control systems and blowdown recovery. Other important optimization interventions in thermoelectric plants concerned the use of crystallizers⁽³¹⁾, a technology that allows the complete reuse of wastewater in the pro-

duction cycle, eliminating related discharges (ZLD – Zero Liquid Discharge plants). Finally, great importance is given to the **reuse of rainwater** collected in plant areas, which cannot be returned as-is to natural receptors as it is potentially contaminated by contact with industrial areas. This water is stored in special storage tanks and reused in the generation processes, thus further helping to reduce the environmental footprint of generation sites.

Efficiency interventions in the use of water also make it possible to minimize **water discharges** as well as **total consumption**, which in **2023** were respectively **19.5 x10³ ML (-37%, 30.8 x10³ ML in 2022)** and **35.4 x10³ ML (-22%, 45.2 x10³ ML in 2022)**.

The target for reducing specific fresh water withdrawal and the focus on water-stressed areas

Starting last year, Enel renewed and relaunched its commitment to preserving water resources, adopting the target of a 65% reduction in **specific withdrawal of fresh water** by 2030 compared with the base year 2017.

By directing attention to the most valuable and vulnerable water resource, Enel's objective demonstrates its even more explicit commitment to the protection of natural habitats and to the needs of local communities, also taking into account recent EU regulatory developments in the field of sustainability reporting (EU standard ESRS-E3 "Water and Marine Resources") and the results of the risk and priority analysis conducted at Group level.

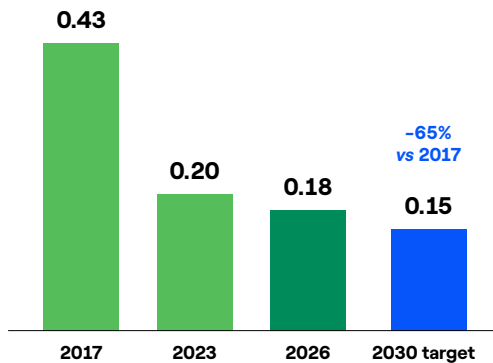
The commitment is pursued through the definition, at

Group level, of common strategies and specific objectives, which are implemented locally through the adoption of Environmental Management Systems on all assets for which the resource is material, as well as through water management plans for hydroelectric plants combined with continuous improvement programs shared with local stakeholders (basin authorities, local administrations, control bodies, citizens' committees and NGOs). The measures of impact mitigation and improvement, defined in the management plans, aim to the guarantee of minimum vital flow and the protection of habitats (see the specific websites of the Environmental Authorities of the various countries where the Group is present).

(31) Crystallizers or SEC (softening, evaporation and crystallization) systems. Technology applied in Italy in coal-fired power plants.

During 2023, a total of **40.6 x10³ ML of fresh water** was **withdrawn** for process and closed-loop cooling uses, a significant decrease (**-23%**) compared with 2022 (**52.7 x10³ ML**), with the **specific fresh water withdrawal value at Group level standing at 0.20 l/kWh (13% down** on last year's value of **0.23 l/kWh**), as a consequence of the reduced thermoelectric and nuclear generation.

SPECIFIC FRESH WATER WITHDRAWAL (l/kWh)



Enel also pays particular attention to the vulnerability of the resource, by mapping and constantly monitoring all generation sites located in areas classified as **water-stressed areas**. Mapping of generation, thermal, nuclear and renewable sites falling within water-stressed areas is carried out in line with the criteria of GRI 303 (2018) with reference to the conditions of “(baseline) Water Stress” indicated by the World Resources Institute Aqueduct Water Risk Atlas⁽³²⁾. Among the sites mapped, those defined as “critical” are those positioned in water-stressed areas and which procure significant volumes⁽³³⁾ of fresh water. For these sites, which are mainly thermoelectric and nuclear plants that use water resources for process and closed-cycle

cooling needs, water management methods and process performance are constantly monitored, in order to minimize consumption and favor withdrawals from sources of lower quality or which are non-scarce (wastewater, industrial or sea water).

Fresh water withdrawals in water-stressed areas, which in **2023** amounted to **10.3 x10³ ML**, are also decreasing (**-17%**) compared with **2022 (12.4 x10³ ML)**, although to a less marked extent than the overall withdrawal value (-23%), due to optimization initiatives already adopted in these areas. Consequently, the percentage of water withdrawn in water-stressed areas was 23% of total withdrawals in 2023 and slightly up on the previous year (19% in 2022).

The **specific withdrawal of fresh water in water-stressed areas** was **0.10 l/kWh** in 2023, which was however slightly lower than the previous year (**0.12 l/kWh in 2022**) and in general significantly lower than the total Group value reported above (**0.20 l/kWh**), underlining the Company's priority commitment to adopting, in water-stressed areas, renewable technologies (solar and wind) that do not require significant quantities of fresh water or, in the case of thermoelectric plants, sea water desalination technologies⁽³⁴⁾.

Also in the case of solar plants located in water-stressed areas, although the volumes are insignificant, Enel adopts innovative solutions aimed at drastically reducing local water consumption used for the periodic cleaning of photovoltaic panels.

More generally, since 2020 Enel has been implementing the **WaVE (Water Value Enhancement) project** in order to reduce the use of water resources in all thermoelectric and renewable power generation sites, particularly in water-stressed areas. The project continued in 2023, refining the mapping of assets and focusing on the effects that climate change may have on the availability of water resources.

(32) GRI 303 defines “water stressed” areas as those in which, based on the classification provided by the WRI Aqueduct Water Risk Atlas, the ratio, referred to as “baseline water stress”, between total annual surface and groundwater withdrawals for different uses (civil, industrial, agricultural and livestock) and the renewable water supply available annually is high (40-80%) or extremely high (>80%). By way of greater environmental protection, those plants located in areas classified by the WRI as “arid” due to the unavailability of water are also considered as located in water stressed areas.

(33) Plants with withdrawals greater than 100 m³/year are included.

(34) The quantities of fresh water withdrawn and the energy generated in water-stressed areas are calculated taking into consideration both thermoelectric and renewable plants located in these areas. In the case of renewable plants managed in geographical clusters that include areas with different levels of water stress, the estimates of the previous quantities were made in proportion to their generation capacity.



WaVE PROJECT

REDUCING THE USE OF SURFACE FRESH WATER IN ITALY

The La Casella power plant, one of the largest combined cycle units in Italy and fundamental for ensuring the production continuity during the transition towards renewable generation, recently saw the revamping of its integrated water management system. The system, stocked with fresh water withdrawn from the river Po at the time the plant was built, had become obsolete and unreliable, with potential repercussions on the availability of the power generation units. The intervention completely renewed the demineralized water production process, by implementing a more advanced technology

REDUCTION OF WATER USAGE IN IBERIA

The Barranco de Tirajana plant located in the Canary Islands, a water-stressed area, has implemented a series of plant modifications and optimizations that enable it to **recover and reuse water** used in so-called storage phases, rather than discharging it

based on reverse osmosis whilst at the same time carrying out various modernization interventions in the sections dedicated to production of industrial water and wastewater treatment. The project's key objectives include **the creation of efficient and automated systems**, with optimal standards of safety and respect for the environment, which eliminate the risk of unavailability. Furthermore, the initiative is envisaged to bring about a significant reduction in the consumption of demineralized water, and therefore in the withdrawal of fresh water from the river, with a consequent positive impact on the water resource, through the **recovery of steam generator blowdowns** and the **reuse of rainwater and wastewater**. The project is expected to reduce the plant's needs for water from the river Po by up to 70%. Other tangible benefits include a significant reduction in water discharged after treatment and a notable reduction in the consumption of chemical reagents and sludge generated by wastewater treatment processes, further improving the efficiency and sustainability of the power generation plant.

and producing it again when needed. This delivers numerous advantages, including greater operational flexibility, which in turn reduces production restart times. Furthermore, significant water savings are achieved, with a reduction of approximately 50% in the quantity of water required for storage, considering the plant's typical current work cycle.

Responsible and integrated management of water catchment areas

The operation of **hydroelectric power plants** is an important element of water management. The materiality analysis recognizes to this technology significant impacts on the transformation of terrestrial and aquatic habitats during the construction and initial operation phases of the plants. However, almost all of the Group's hydroelectric power plants are now several decades old and in the period since their construction, the surrounding habitats have had the opportunity to fully regain their equilibrium, enhanced by the very presence of the water basins, to the point of becoming protected natural areas in many cases. These power plants, which do not contribute to the Group's water consumption since the water withdrawn is completely returned to its source, further provide a series of additional services for the community that extend beyond the sole generation of renewable energies. Most of power

plants, jointly run by government with public and private stakeholders, manages the water resource for multi-purpose services ranging from flood control, drinking water and irrigation and firefighting services, to the management of river waste held by artificial dams, also including numerous cultural, leisure and nature-based initiatives, made possible thanks to the presence of the power plants. The reservoirs of hydroelectric plants also carry out a vital role in the response to the effects of climate change, increasing the level of protection of the communities subject to increasingly frequent severe flooding and to prolonged periods of drought. Management of the outflows from hydroelectric plants is done through specific programs to ensure the volumes of water required to preserve the ecological state of rivers (minimum vital water flows).

Preventing pollution

Enel is committed to the continuous application of the most advanced technologies available and best practices in order to minimize the possible impacts deriving from its activities on environmental matrices, such as air, water and soil, using international standards as a benchmark even where the environmental protection requirements of

local legislation are less stringent. These protection principles are made effective through the definition of quantitative objectives and operational plans applied to all of the Company's production and service sites and infrastructures, from the design and construction phases through to operation and end-of-life repurposing.

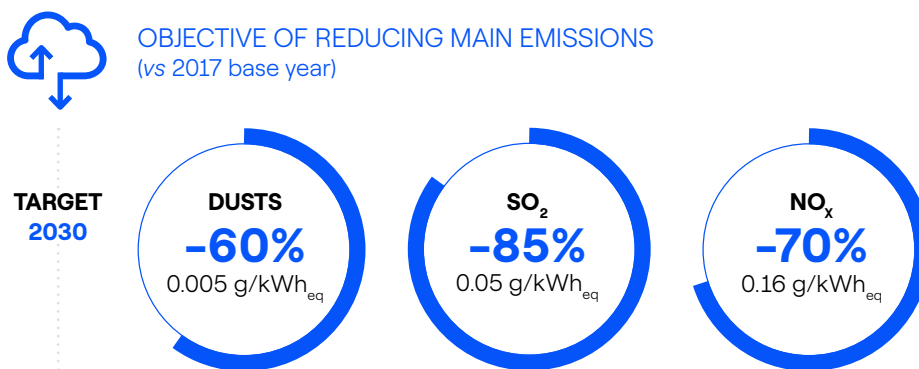
Actions to reduce pollution in the atmosphere

3-3 | 305-7

The constant commitment to improving air quality in the areas where Enel operates is demonstrated by the care paid to **reducing the main atmospheric pollutants** associated with thermal generation: sulfur oxides (SO₂), nitrogen oxides (NO_x), and particulate matter (PM).

For years, the Group has set itself important objectives to reduce specific emissions of pollutants emitted into the

atmosphere. In line with the SBTi certification process with respect to the Group's GHG emissions and the revision of the baseline to 2017 carried out last year to take into account the deconsolidations of assets as at December 31, 2022, the target values for pollutant emissions into the atmosphere by 2030 are:



In addition to these, the target of reducing mercury (Hg) emissions from coal-fired thermoelectric plants by 100% compared with the year of reference has been introduced since last year⁽³⁵⁾. Pollutant reduction trends and targets are consistent with the Strategic Plan and with the Group's decarbonization objective.

Emission measurements are carried out in compliance with each country's regulatory framework and, in the majority of large plants, a measurement system is used that can assess compliance with the limits in real time. Its reliability is guaranteed by accredited certifying entities and through assessments carried out by inspection authorities.

In 2023, NO_x emissions amounted to **0.26 g/kWh_{eq}**, a reduction in both absolute and specific terms (-19% compared with the **2022 value of 0.32 g/kWh_{eq}**), due to the

concomitant lower overall production of gas and CCGT combined cycle plants. In particular, the specific emission of NO_x in 2023 is lower than the intermediate target set for 2026, as this latter forecast data takes into account pessimistic scenarios, including a potential fluctuation in hydroelectric power generation.

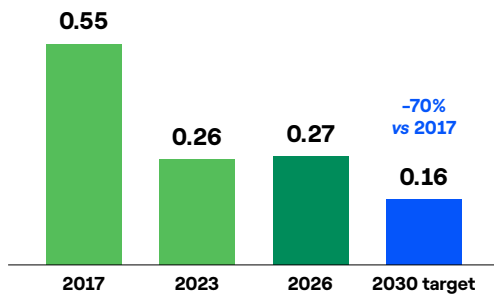
By contrast, emissions of SO₂ and particulate matter increased compared with last year, as a consequence of the revamped production of some previously inactive coal-fired power plants in Latin America, owing to specific production needs as a result of intense drought phenomena linked to El Niño, which significantly altered rainfall distribution. In particular, **specific emissions of SO₂ were 0.09 g/kWh_{eq} (29% compared with the 2022 value of 0.07 g/kWh_{eq})**, and PM emissions totaled **0.006 g/kWh_{eq} (20% compared with the 2022 value of 0.005 g/kWh_{eq})**.

(35) The target refers to the countries for which this measure is prescribed and therefore includes Italy, Spain and Chile, whereas Colombia is excluded. The baseline value of 387 kg of Hg, referred to the year 2017, was calculated net of corporate deconsolidations as at December 31, 2022.

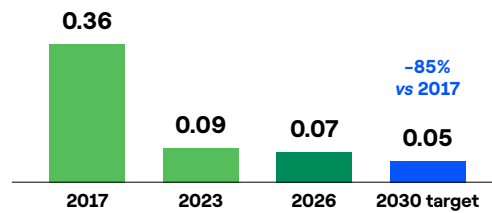
For **mercury emissions from coal-fired plants**, the value for the year 2023 was **44 kg** of Hg, **down 41%** compared with **2022 (75 kg)**. For these emissions – which have also always been subject to constant monitoring and reduction in all plants of the coal-fired thermoelectric park fleet through the adoption of the best available and techno-

logically applicable abatement techniques – as previously stated, the target value of 0 kg of Hg (-100%) by 2030 is set, in line with the expected closure of all coal-fired plants by 2030, whereas the value set for 2026 is 3 kg of Hg (-99% compared with 2017).

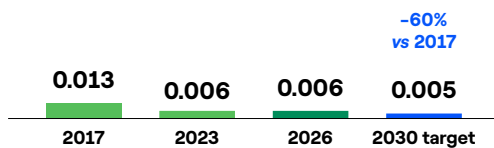
NO_x (g/kWh)



SO₂ (g/kWh)



PARTICULATE MATTER (g/kWh)



Actions to reduce the impact of liquid waste

The paragraph “Responsible use of water” presents Enel’s commitment to minimizing the discharge of wastewater from plants into surface water bodies, downstream of internal recovery and reuse actions. Discharge, in plants not equipped with zero liquid discharge (ZLD) systems, always takes place downstream of a **treatment process** that removes any pollutants present to concentration levels that will not have negative impacts on the receiving water bodies, as verified by sampling and analysis plans and in com-

pliance with the limits and requirements established by national regulations and operating permits.

The potentially polluting substances present in discharges mainly consist of metallic species (Fe, Al, Si, Ca, Mg) present in solution or, to a lesser extent, suspended solids. However, there are no pesticides or substances classified as hazardous, while insignificant quantities of nitrates and phosphates might be present, linked to thermal power generation rather than to the use of chemical substances⁽³⁶⁾.

(36) The materiality indicated in the paragraph “Impact factors” for hydroelectric and nuclear technologies in relation to the item “Water pollution” refers instead to possible alteration in the quality of the resource resulting, respectively, from phenomena of anaerobic decomposition and/or eutrophication inside the basins in the case of hydroelectric plants, and from the temperature of cooling water in the case of nuclear plants. In both cases, therefore, there is no direct emission of priority polluting substances (based on the E-PRTR Regulation) by the plants.

Actions to protect the soil, subsoil and groundwater

| 3-3 |

Enel pays the utmost attention to the protection, monitoring and remediation of soil, subsoil and groundwater in the areas where power generation and service facilities are present in all countries.

The protection of environmental matrices guides every phase of each asset's life, from design choices to construction, operation and end-of-life management. Both active and passive protection and safety measures are used in the design phase to prevent and, in any case, minimize the risk of uncontrolled or accidental contact of potentially polluting substances (such as fuels, reagents, liquid and waste flows) with soils and subterranean waters.

During **plant operations**, every process undergoes compliance controls as well as ongoing upgrades as required by the Environmental Management Systems to prevent and minimize the risks of any potential environmental contamination. At the same time, control plans are executed to monitor the condition of the previous environmental matrices. In the event of an accident, for example the accidental spillage of polluting substances, the timely application of the Stop Work and Emergency Management Policies makes it possible to prevent or minimize the risk of environmental impacts, rigorously complying with the provisions and the legal obligations of the various countries.

For the **end-of-life management of power plants**, once they have been secured and prior to being dismantled and the area reassigned for new development projects, Enel proceeds to verify further the environmental quality of the soil, subsoil and groundwater in the areas where the plant is located, according to the authorized provisions and legal requirements of the various countries. In

case of potential contamination events, characterization of the environmental matrices in the areas potentially affected and, if necessary, implementation of safety measures and subsequent remediation, are executed according to intervention plans shared with the competent authorities and by resorting to specialist, qualified companies that are able to promptly restore the level of quality suitable for the intended use of the area (industrial, commercial, residential etc.). Particular focus is on power plants falling within large industrial hubs.

In order to optimally implement the principles of sustainability also in soil and groundwater management, while optimizing the environmental, social and economic value of the sites, Enel Green Power has implemented **dedicated Guidelines ("Sustainable Remediation")** focused on remediation projects.

The guidelines describe and include tools useful for the analysis and preliminary selection of remediation technology(s) to be applied in contaminated sites and provides support towards the technology comparison process.

The main drivers of the sustainable remediation model are:

- the protection of human health and the environment;
- the promotion of "*in situ*" interventions which avoid the production of waste and the need for road transport;
- a strong focus on the recovery and reuse of remediated soil and groundwater, reducing their impact on existing ecosystems;
- the reduction of atmospheric emissions by minimizing the use of energy and maximizing the application of renewable energy sources.



CONSERVATION AND PROTECTION OF HABITATS AND NATIVE SPECIES CHILE

Biodiversity protection is also a prerogative in the sustainable management of **plant closure and decommissioning phases**. One example is Tarapacá thermoelectric power plant (Chile), where the coal-fired unit was closed in 2019 and the preparation phase for the definitive demolition of the plant is currently under way following receipt of all the necessary authorizations.

The plant is located near a Priority Site for Biodiversity (Punta Patache, Iquique, Región de Tarapacá), particularly with regard to seabirds; hence, during the environmental assessment of the closure phase, the nesting sites of **Peruvian tern** species (*Sternula lorata*, categorized as endangered by the International Union for Conservation of Nature (IUCN)) were considered as sensitive receptors in order to prevent any physiological or behavioral effects resulting from the increased noise levels; therefore, for preventive purposes, these nesting sites have been mapped and excluded from any work or activities associated with the demolition project.

Also detected in the vicinity of the plant was the presence of **Markham's storm petrels** (*Hydrobates markhami*, classified as endangered by national legislation), a species heavily affected by light pollution. For this reason, the decommissioning project considers the use of safe lighting for the species as a mitigation measure, based on the main recommendations contained in the guide "Diagnosis and guidelines to mitigate the effects of light pollution on seabirds of Chile⁽³⁷⁾", such as:

- use suitable lighting fixtures to avoid dazzling the birds (prefer warm lights to cold lights, choose fixtures with protections or hoods);
- direct lights towards the ground and position them as low as possible;
- limit the use of lighting equipment to that which is strictly necessary.

Tarapacá power plant has an Emergency Plan for the management and rescue of Markham's storm petrels, which involves collecting and caring for specimens that may be attracted to lights or other objects, and, in emergencies, transferring them to a Wildlife Recovery and Rehabilitation Center accredited by the Environmental Authority for clinical assistance, marking and release of the specimen.



STERNULA LORATA



HYDROBATES MARKHAMI

(37) See: redobservadores.cl/wp-content/uploads/2022/06/Guia-iluminacion-amigable_final.pdf.

Waste management

| 3-3 | 306-1 | 306-2 | 306-3 |

Optimal waste management is a strategic objective of Enel's environmental policy, which results in a constant commitment to reducing waste generation, as well as to constantly devising new methods of reusing, recycling and recovering waste in the perspective of a circular economy of resources, in line with the principles indicated by the

The target of reducing waste from operational and maintenance activities

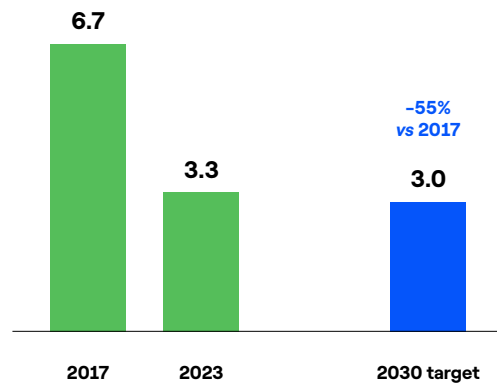
For several years, Enel has been pursuing an important target of reducing waste produced by direct, operational and maintenance (O&M – Operation and Maintenance) activities carried out on its plants. The ongoing energy transition and Enel's strategic decision to progressively close its coal-fired thermal plants ahead of schedule by 2027 have already in recent years led to a drastic reduction in the quantities of waste produced by these plants, which once accounted for the majority of the Group's internal production. It is therefore envisaged that the production – and subsequent disposal – of ash from coal and gypsum from desulfurization will go to zero.

Starting last year, the target of reducing waste production has been extended to a part of the value chain, namely O&M waste produced by contractors who, operating on behalf of Enel, generate waste which they manage under their own responsibility as producers, in compliance with applicable laws, authorizations and mandatory qualification and management compliance criteria regularly verified by Enel as the contracting company. These mostly consist of excavated earth and rocks and inert materials from civil and road construction and demolition, which in some main countries, including Italy, are classified and managed as waste and entirely destined for recovery.

This new adjustment of the target incorporates the principles of extended responsibility of the waste producer, as recommended by the recent EU standard ESRS E5 "Resource use and circular economy". It also makes it possible to highlight, in the context of the ongoing energy transition, the growing role within the Company of the manage-

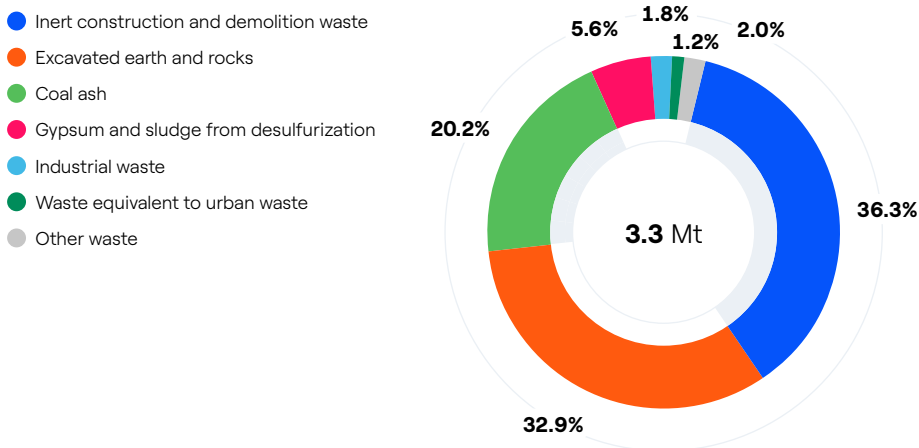
ment of electricity distribution networks, service networks (for example, public lighting networks) and renewables plants. The target commits the Company to a 55% reduction in waste produced by direct and contracted O&M activities in 2030 compared with the base year 2017.

WASTE PRODUCTION FROM O&M ACTIVITIES (Mt)



Waste produced in 2023 amounted to **3.3 Mt (-51%** down on 2017), a moderate decrease compared with **2022 (3.4 Mt)**, as a consequence of the reduced output of coal-fired thermoelectric plants.

WASTE PRODUCED BY O&M ACTIVITIES



The vast majority of **waste produced (98%)** is classified as **non-hazardous**, mainly consisting of inert waste from construction and demolition, coal ash and excavated earth and rocks. In particular, production of coal ash desulfurization and gypsum was respectively 0.66 Mt in 2023 (-35% vs 2022) and 0.08 Mt (-29% vs 2022).

Hazardous waste amounted to a significantly smaller portion (**0.07 Mt**) of total waste produced, equal to 2%, which was slightly up on 2022 (0.06 Mt) as a consequence of non-routine maintenance interventions.

A significant portion of this waste (**0.02 Mt**, corresponding to 29% of total hazardous waste) is represented by "TSD sludges" (TSD denotes DeSO_x plant blowdown treatment), produced by the pre-washing of combustion fumes in coal-fired thermoelectric plants, aimed at subsequently obtaining, in the desulfurization tower, gypsums that comply with standards for their reuse in the construction industry. Enel, for precautionary reasons and standardized management, has decided to classify these sludges as hazardous by origin, sending them to landfill. The quantity of sludges produced is therefore linked to the operation of coal plants. In 2022, the year in which coal-fired electricity production in Europe increased by approximately 7 TWh compared with 2021 owing to the geopolitical context and following various meteorological factors, sludges production increased by over 9,000 t compared with the previous year (in 2021 it was 10,300 t). In 2023 there was a slight decrease in sludges production of approximately 1,000 t compared with 2022. Furthermore, the gradual planned phase-out of coal plants over the next few years will allow the quantities of said sludges to be progressively reduced. A second important category of hazardous waste is 'industrial waste', which in 2023 amounted to **0.03 Mt**, equal to 43% of total hazardous waste. This waste is essentially end-of-life equipment, originating mainly from the maintenance and renewal of power grids and which is almost

entirely sent for recovery (78%).

The remaining portion (**0.02 Mt**, equal to 28%) mainly consists of oils, as well as earth and rocks that are classified as hazardous.

The total quantity of **hazardous waste sent for disposal** in 2023 was **0.036 Mt**, which is substantially similar to 2022 (0.034 Mt), and mainly the result of non-routine maintenance of some thermoelectric plants and modernization of power grids.

The **overall percentage of O&M waste**, both hazardous and non-hazardous, **sent for recovery** totaled **85%**. The commitment to a continuous increase in the percentage of waste recovered is essential for an effective transition towards a circular economy that minimizes the exploitation of natural resources, in accordance with the objectives of sustainable development and reducing the Company's environmental impact and dependence on ecosystem services. **Excavated earth and rocks (96%)** and **construction and demolition waste from O&M activities (89%)** were recovered almost in their entirety, deriving mainly from the maintenance of power grids as well as of generation plants. Process waste from thermoelectric generation was also recovered to a significant extent, including **coal ash and desulfurization gypsum**, which were reused in construction industry to produce cement, concrete and bricks according to specific technical and environmental control requirements. In particular, the percentage sent for recovery was **75% for coal ash** and **88% for desulfurization gypsum**, slightly down on the previous year (respectively 80.4% and 88.3% in 2022). Finally, **industrial waste, WEEE and metal waste**, including iron, copper and aluminum, deriving from the maintenance of generation plants and power grids was mainly destined for recovery (**90%**).

In 2023 the target of **reducing** the use of **single-use plastic by 85% in Italy and Spain** was consolidated. A reduction of disposable plastic in Enel's offices was achieved

through a series of initiatives, including a program to replace water bottles with water dispensers connected to the main supply (made possible by the system configuration), a contractual ban on the use of disposable plastic in

bar and canteen activities, greater attention to the packaging of products offered in vending machines, as well as by replacing plastic cups with cups made from compostable material.

Waste produced by construction and demolition activities

In addition to the commitment to reducing waste in the operational and maintenance activities described above, monitoring of waste production and recovery also extends to the **value chain**, including waste resulting from the construction of new renewable plants and the demolition of thermoelectric plants at end-of-life, as it is directly linked to the implementation of the Group's decarbonization and energy transition strategy. Above all, these activities are linked to the generation of inert materials, such as excavated earth and rocks, as well as valuable metal waste, in the case of the end-of-life decommissioning of plants. Enel is constantly committed to maximizing their recovery. In particular, for the recovery of waste deriving from the end-of-life decommissioning of plants, selective demolition techniques of the structures and dedicated management procedures are adopted to maximize their economic valorization.

In 2023, waste produced on the **construction sites** of new renewable plants (wind and solar) and by the 3Sun gigafactory totaled **0.165 Mt**, which consisted almost exclusively of **non-hazardous waste (99.7%)**. The same activities

also produced 7.4 Mt of excavated earth and rocks, which was entirely reused *in situ*.

In addition, waste from the end-of-life **demolition** of thermoelectric plants totaled **0.4 Mt**. Waste from these activities consisted of **95% non-hazardous waste** (mainly excavated earth and rocks, inert waste from construction and demolition and industrial waste, including mainly metals) with average recovery values of 80%, rising above 99% for the metallic portion. Programs at country level and dedicated initiatives at plant level are aimed at optimizing the management of this waste, with a view to maximizing its recovery and value.

Finally, with reference to the **specific redevelopment worksite of the Enel headquarters** in Viale Regina Margherita (Rome, Italy), launched in November 2020 for a duration of approximately 40 months and involving a total area of approximately 80,000 m², the amount of waste produced in 2023 totaled 17.9 kt, of which 99% (about 17.7 kt) consisted of demolition aggregates, glass and metals, which was entirely sent for recovery.

Improvement initiatives

The "Zero Waste" initiative, launched in 2020 by **Enel Green Power**, is now into its third year and involves the countries in maximizing the **reuse of materials**, by reducing waste generated by their plants and on construction sites, and optimizing waste recovery and recycling through the adoption of projects and good practices that often also involve contractors and local communities. The search for new solutions has continued this year too, by **engaging the Innovation area** to facilitate the circular management of renewable technologies at end-of-life.

In particular, great attention is paid to **testing solutions** for the sustainable management of the end-of-life components from solar and wind technologies, in anticipation of their decommissioning in the coming years, especially starting from 2030.

As regards **solar technology**, examples include the "Pho-

torama" project, aimed at **recovering the most useful materials contained in photovoltaic panels** and then reusing them in the same production chain, and the Chilean project on the "2nd life" of panels, launched in 2022, which aims to research innovative solutions for analyzing failures in disused PV modules and reusing said modules in alternative applications.

Meanwhile as regards **wind technology**, the "Wind New life" project has reached the phase of verifying the technical and industrial-scale feasibility of **recycling wind turbine blades**; there are Proofs of Concept (PoCs) focused on suitability testing of ground material from wind turbines for use in different industrial sectors. Work is also ongoing, especially on a national scale, in conjunction with other utilities and sector associations, on advocacy actions and plans for the end-of-life management of wind turbines.



TECHNICAL CLOTHS INITIATIVE ENEL GREEN POWER & THERMAL GENERATION ITALY

In order to promote the **reduction of waste generated by absorbent and filtering materials**, used in routine and non-routine maintenance operations carried out on its plants, Enel Green Power Italy has launched a trial, with the involvement of the Ministry of the Environment, on a number of thermoelectric and renewable plants for using so-called “technical cloths”

for industrial cleaning. This practice enables specific cloths to be repeatedly reused, as well as reconditioned to their original absorbent function through controlled washing operations. The companies producing the reusable technical cloths not only rent them out, but also collect them back and wash them after use. A high level of control is ensured in each phase by making the cloths identifiable by means of a special indelible mark and providing evidence as to the correct management of wastewater resulting from the various washes. The renting and reuse of the cloths makes it possible to reduce their production and the disposal to landfill of often hazardous waste (around 10-20 t/year of waste is avoided for each plant taking part in the trial), with undeniable benefits for the environment, as well as economic savings.



As regards waste generated by **grid management activities**, in continuity with programs launched in previous years, the commitment to the **recovery of special waste**, both hazardous and non-hazardous, has continued. In particular, **dielectric mineral oils used** as insulators in electrical equipment are given to authorized companies for regeneration and, only in cases where this option is not feasible, destined for waste-to-energy processes.

Initiatives undertaken in the various countries are also ongoing. Notable examples are the “DPI NewLife” project in Italy, focusing on the **recovery of expired or used personal protective equipment** for use in construction as a secondary raw material. A pilot project called “Telereciclo” was also launched in Colombia, to transform operational staff’s **obsolete clothing** into multicolored fiber by means of a cleaning and shredding process. Another pilot project started in Colombia aims to recover obsolete **porcelain insulators** (about 200 t), which are suitably treated and re-used in construction to improve the resistance of cement to abrasion, wear and chemical agents.

In 2023 **Enel X Global Retail** maintained its commitment to a sustainable approach that is oriented towards **reduc-**

ing the consumption of natural resources and **reducing the use of virgin plastic** in its products and in the packaging of products destined for the European market, in accordance with EU Directive 2019/904 and EU Decision 2020/2053. In the Enel X Way Waypole™2 product (column-type charging infrastructure for electric cars), the materials of both external enclosures and the internal parts have been replaced with sustainable materials (certified 100% recycled plastic) from recovered E-Distribution energy meters. The same type of recycled plastic is now used for the casing of the Enel X Way Waybox™ Pro product (box-type charging infrastructure for electric cars). The new residential charging product, Waybox Start, is also manufactured using sustainable materials and consists of over 60% recycled plastic from external sources. The commitment to reducing **plastic in packaging** resulted in the elimination of plastic handles and bags for accessories and switching all primary packaging for products such as the Waybox and Waypole to recycled cardboard (over 50% recycled material in primary packaging and over 90% in secondary packaging).

As regards **products placed on the market**, Enel X Global

Retail promotes supply chain initiatives to reduce the use of plastic by applying reward criteria to the selection of suppliers in a way that favors the use of recycled, recyclable or reused materials or products that reduce demand for virgin materials and incorporated carbon emissions.

In addition, Enel X Global Retail adopts the **Extended Producer Responsibility (EPR)** model, which also includes the **post-consumer phase**, by adhering – also on a voluntary basis – to collective WEEE collection systems in all the markets in which it operates, as well as the collection of batteries and packaging, and by launching **end-of-life management initiatives** for marketed products and optimizing their design with a view to maximizing their reuse and recycling.

Initiatives launched in previous years are continuing, namely the “ALVA (ALternativas de VALorización)” project in Spain for the reuse and recycling of products or components of Electrical and Electronic Equipment (EEE) collected from customers, and the agreement between Enel

X Italia and the CdC WEEE (WEEE Coordination Center), which saw the participation of 94 B2C installation companies. Through this Protocol, the provision of EEE collection service is promoted through syndicated collection systems distributed nationwide.

Other initiatives are being developed on the ground. For example, in Italy, Enel hosts the “DireFareRAEE” campaign in two of its Spazio Enel outlets; the campaign was launched by Erion WEEE and is intended to educate and raise awareness among citizens about the importance of recycling electrical and electronic waste and to encourage the transition towards the circular economy.



For further initiatives, see the chapters “**Circular economy**” and “**Sustainable supply chain**” in this document.

Energy efficiency

| 3-3 | 302-1 | 302-3 | 302-4 |

Within **an international context** in which energy efficiency (“energy efficiency first”) is considered a priority, Enel systematically and continuously promotes every possible improvement action. One of the actions implemented by the Enel Group that is certainly highly effective is the implementation of **certified Energy Management Systems** according to the **EN ISO 50001** international standard and regulatory obligations established by the new EU Directive 2023/1791 adopted by the European Council as part of its energy efficiency strategies.

The binding nature of the Directive obliges member states to adapt national legislation to the new community provisions; specifically, based on the average annual consumption of all energy carriers, companies will have to implement an energy management system (EN ISO 50001) and in any case carry out energy audits on their organization every four years (EN 16247-1).

Enel has promptly taken steps to meet these last obligations in Italy and Spain, guaranteeing compliance with requirements relating to energy use and consumption, as well as adopting a systematic approach aimed at continuous improvement, starting from the **main energy generation units**, where the coverage level of ISO 50001 certificates for **Italy stands at 85%** of total thermoelectric capacity.

Around the **world**, Enel has certified approximately 13,500 MW of installed capacity to the ISO 50001 standard, corresponding to **42%** of thermal technology production

sites. In addition, in Italy, it is worth noting that Larderello, the oldest **geothermal complex** in the world, obtained the first ISO 50001 certification in 2021, making Enel Green Power the first renewable energy company in Italy to have obtained this important recognition.

As regards **distribution grids** all the **main distribution companies** in Italy, Spain, Argentina, Brazil, Chile, Colombia and Peru are ISO 50001 certified. This commitment is constant and continuous and is aimed at creating energy efficiency in all business processes, encompassing the design, construction, development and management and maintenance of HV, MV and LV electrical networks and remote control, as well as in commercial services relating to the transport of electricity and the connection of end customers and manufacturers and for electricity metering and balance processing services.

Notable achievements in **Enel X Global Retail** include ISO 50001 certification in the **main operating companies in Italy and Spain**, where it is supported by additional certification to the respective national technical standards UNI CEI 11352 and UNE 216701. These rules establish the conditions and requirements to be complied with so that companies providing energy services can be defined as ESCo (Energy Service Companies). A certified ESCo is able to offer contracts as a guarantee of results to its customers, for services aimed at improving energy efficiency.

Energy efficiency in production processes

Energy consumption is mainly represented by fossil fuels, to operate thermal power plants (with coal accounting for 16% and natural gas 37% in 2023), and by uranium, to operate nuclear power plants (35%). By contrast, a smaller amount of energy consumption is related to the operation of power generation plants relying on renewable sources (biomass and geothermal). Total **direct consumption** of energy for electricity generation in 2023 amounted to **806,728 TJ** (19.3 Mtoe), which was substantially lower (**-27%**) than the energy consumption of fuel recorded in 2022 as a result of the decrease in thermoelectric generation from coal (-89,257 TJ, equal to -43% compared with 2022) and natural gas (-192,858 TJ, equal to -41% compared with 2022), as well as from nuclear, to a lesser extent. **The Group's energy intensity**, which provides a measure of its operational efficiency, was **3.891 MJ/kWh_{eq}** in 2023, down on the previous year (**-20%**).

Energy efficiency and electrification products for customers

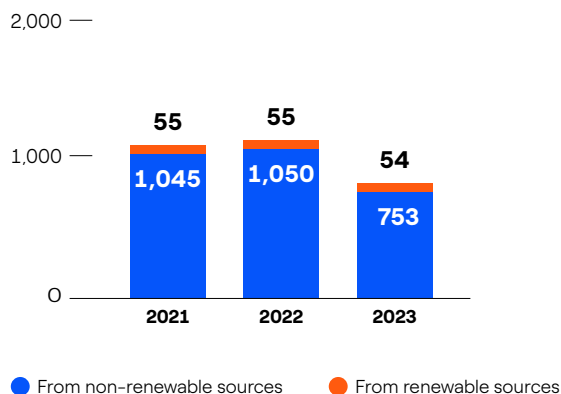
The electrification of final consumption has become a central element of Enel's strategy. Its intrinsic efficiency makes it the key partner in achieving sustainable goals globally. In line with this approach, several initiatives across the Company's businesses were strengthened and consolidated in 2023 to support commitments towards clean electrification. In 2023, the interventions carried out by the Business Enel X Global Retail Business Line in relation to efficiency, technological innovation and reduction of CO₂ emissions in the sectors in which the division operates, were strengthened and consolidated.

In the **public lighting sector**, interventions carried out during 2023 by Enel X Global Retail in Italy, Spain, Chile and Colombia led to the new installation of 266 MW of LED lighting systems, which together with the systems already in operation generated cumulative savings of approximately 290 MWh.

For its B2C (Business to Consumer) customers in Italy, Spain, Chile and Romania, Enel X Global Retail installed over 92,000 **energy efficient products** in 2023, including condensing boilers, air to air heat pumps and over 12,000 conventional and balcony photovoltaic systems (some with storage system).

In the B2B (Business to Business) sector, **photovoltaic sys-**

CONSUMPTION OF PRIMARY ENERGY FROM RENEWABLE AND NON-RENEWABLE SOURCES (,000 TJ)



tems managed by Enel X Global Retail for its customers in Brazil, Spain, Italy, North America and South Korea totaled 56 MW installed generation capacity and enabled the production in 2023 of approximately 70 GWh of renewable energy, in addition to the energy efficiency achieved by the 22 cogeneration and trigeneration plants managed by Enel X Global Retail in Italy and Spain.

For Enel, the development of its electric mobility business is one of the necessary responses to the energy transition insofar as it combines decarbonization, digitization and electrification, in line with the Group's sustainability objectives. In 2023, the increased diffusion of both electric vehicles and Enel X Global Retail public charging points connected to the grid avoided over 30,000 tons of CO₂ emissions.

Overall in 2023, Enel X Global Retail's efficiency and electrification products and services, including those already in operation⁽³⁸⁾, enabled customers to avoid emitting over 327,000 tons of CO₂, equivalent to the CO₂ absorbed in one year by over 18 million trees. The environmental benefit values were calculated by applying specific algorithms validated by an internationally recognized certification body in accordance with the principles identified in the UNI EN ISO 14064-2:2019 standard.

(38) The estimate of avoided emissions considers consumption relating to 2023 and its calculation is limited to all plants actually in operation and energy efficiency products, including those installed in past years, within their period of warranty.



ENERGY EFFICIENCY IN THE CIVIL SECTOR ITALY

Enel is committed to managing energy responsibly to reduce its environmental impact and improve its sustainability, through **more sustainable use of energy sources** as well as **improving the energy performance of civil premises for office use**, with attached infrastructures, by proceeding according to three guidelines:

- compliance with regulatory compliance;
- performance monitoring;
- efficiency in order to achieve objectives.

In relation to compliance with **current legislation** and all requirements related to energy consumption and energy efficiency, attention is notably paid to **energy diagnoses** on activities relating to the civil premises of Enel Italia SpA (Legislative Decree 102/2014), aimed at providing adequate knowledge of the energy consumption profile of a building or group of buildings or of an activity, identifying and quantifying energy saving opportunities from a cost-benefit perspective, and reporting on the results. Also worth noting is the **appointment of an Energy Manager** (Law no. 10 of 9/1/1991), responsible for evaluating energy consumption and implementing projects that increase efficiency and reduce energy-related costs

as well as ensuring the rational use of energy within the Company.

Periodic and continuous monitoring of consumption at site level occurs through PODs (Points of Delivery) for electricity and PDRs (Redelivery Points) for gas. By analyzing data deriving from the energy monitoring systems installed in the individual plant subsystems, as well as analyzing the operation of plants by means of Building Energy Management Systems (BEMS), it is possible to **identify any anomalies** in the operation of the plants and **implement actions for the continuous improvement** of their energy performance.

Where monitoring actions such as energy audits, together with cost-benefit assessments, establish the opportunity to pursue the best technological actions, specific efficiency projects are launched. Best practices in the area of energy efficiency become “basic principles” for design, especially as regards electrical and mechanical plant engineering fields (HVAC), such as:

- installing efficient technologies (e.g., upgrading to LEDs, presence sensors and brightness sensors for lighting);
- improving housings (e.g., replacement of fixtures);
- decommissioning boilers and replacing them with heat pump technologies according to principles of electrification of consumption (Net Zero);
- installing Building Energy Management System and energy monitoring systems;
- installing systems for producing energy from renewable sources (photovoltaic, solar thermal panels, etc.);
- installing charging stations for electric vehicles.

Environmental legal disputes

| 2-27 | 2-4 |

The number of legal proceedings as at December 31, 2023 was 112 across the whole Group. The main environmental disputes related to Latin America. The amount of fines imposed in 2023⁽³⁹⁾ was approximately 3.98 million euros. In addition, 12 non-monetary sanctions were issued. In 2023

the most significant sanctions⁽⁴⁰⁾, under review by the same authorities or subject to appeal with the competent authorities, were recorded in Colombia and are related to authorization aspects linked to impact on habitats.

(39) The relevance threshold for sanctions is 10,000 US dollars, therefore only sanctions that individually exceed this amount are reported.

(40) The relevance threshold of significant sanctions is 100,000 euros, as defined in Enel's policies.

