

**OPEN
POWER
FOR A
BRIGHTER
FUTURE.**

WE EMPOWER
SUSTAINABLE
PROGRESS.



Our performance 2022
Circular economy

enel





Our performance

Ambition of zero emissions and clean electrification

lies at the heart of the strategy we are implementing in a sustainable and innovative way, to favor a **just transition**.

People are the mainstays of sustainable progress,

not only ours, but also customers, suppliers, communities, institutions, the financial community, the media, companies and trade associations.

Innovation, circular economy, digitalization and sustainable finance

are the growth accelerators, and embrace and enhance all strategic themes across the board.

Protection of nature and respect for human rights

form our daily commitment to the current and future generations.

Circular economy

Material topics (I level)



• Innovation, circular economy and digital transformation

Plan



SDG



Below the 2022 results related to the targets of the previous 2022–2024 Sustainability Plan, the resulting progress and the targets of the 2023–2025 Sustainability Plan, which may be redefined, added to, or surpassed with respect to the previous Plan.

Circularity along the entire value chain

SDG	Activities	2022 results	Progress	2023–2025 targets	Tag
8 12 13	Circularity improvement Q	56%	●●●	78% in 2025 92% in 2030	I E
8 12 13	Economic CirculAbility (EBITDA/ resource consumption) Q	N.A.	N.A.	x1.5 in 2025 compared to the baseline year 2020 x2 in 2030 compared to the baseline year 2020	+ I E
7 9 12 13	Valorization of obsolete spare parts, equipment and scrap coming from the demolition of thermal power plants and promoting the adoption of circular business models Q	22 million euros of revenues generated by Reselling and Recycling activities	●●●	53 million euros of revenues generated from Reselling and Recycling activities in 2024 ⁽¹⁾	I E

Read more

The Circularity improvement KPI measures the reduction in the consumption of fuel and materials of the Group's power fleet throughout their life cycle, compared to 2015.

The "Economic CirculAbility" KPI considers the Group's overall EBITDA (euros) and compares it with the amount of resources consumed, both fuel and raw materials, by the different business activities (tons).

The target on the **Valorization of obsolete of spare parts, equipment and scrap coming from the demolition of thermal power plants** involves the adoption of several initiatives, including the **Spare parts and equipment New Life** project, which aims to give new life to components in the warehouses, equipment of decommissioned coal-fired power plants and obsolete materials from all the other thermal power plants, allowing environmental and economic benefits.

(1) Reselling and Recycling activities carried out on the basis of the progress of demolition work and scrap market value.

Goals			Progress					
I Industrial	E Environmental	S Social	⊕ New	↻ Redefined	⊖ Outdated	●●● Not in line	●●● In line	●●● Achieved
G Governance	T Technological					N.A. = not applicable		

Circularity along the entire value chain

SDG	Activities	2022 results	Progress	2023-2025 targets	Tag
12	Definition and application of suitable industrial and financial circularity metrics to support and enhance circular economy activities, engaging the respective business areas	A new KPI Economic CirculAbility® has been developed, measuring circularity at Group level by comparing the value generated (€ EBITDA) against the consumption of resources (tons) needed to generate it <i>The target is considered outdated as it has been achieved</i>	●●●		I E
12	Strategic circular economy projects to reduce raw materials consumption	13 projects Among the main initiatives underway: <ul style="list-style-type: none"> • new technologies for storage (e.g. gravitational storage) • new materials for wind power generation (e.g. wood-based materials for towers) • Wind New Life for wind turbine blades • battery lifetime extension • circular meter scale-up <i>The target is considered outdated on the basis of a new methodological approach⁽²⁾</i>	●●●		I E
12 17	Strengthening of partnerships and collaborations with cities and other public entities (e.g. regions, metropolitan areas, etc.) on circular economy	15 cities/public entities involved in partnerships and collaborations in Argentina, Chile, Italy, Spain, North America and Peru <i>The target is considered outdated on the basis of a new methodological approach⁽²⁾</i>	●●●		E G
12	Engagement of external actors to promote the dissemination and knowledge of the circular economy through physical/virtual events on the topic, training activities and best practice sharing	2,000 external participants engaged through webinars, workshops and other events on circular economy <i>The target is considered outdated on the basis of a new methodological approach⁽²⁾</i>	●●●		I E S

(2) In our path to measure circularity at the aggregate Group level, the focus will be on measuring and identifying the overall impacts of circular activities with respect to reducing resource consumption, with KPIs such as Economic CirculAbility.

Circular economy



Circular economy

| 3-3 | 301-2 |

For Enel, the circular economy is a strategic lever to support the decarbonization strategy and the path towards a fair and inclusive transition, with the aim of progressively applying it to the entire business model in order to make it increasingly sustainable, resilient and competitive.

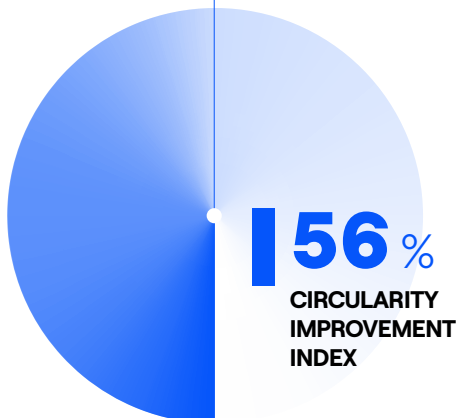
The achievement of increasingly ambitious decarbonization targets in fact requires a profound transformation of the energy system, while at the same time entailing a growing need for raw materials with partly different requirements to those of the pre-existing energy system: to achieve the IEA's Net-Zero Emission (NZE) scenario, it is estimated that minerals will be extracted up to six times more by 2050 than today.

In our energy transition process, we have from the outset adopted an integrated approach that includes, on the one hand, the development of energy generation from renewable sources, and the consequent abandonment of fossil fuels, and on the other hand, the adoption of a circular approach in the management of assets for

the generation and distribution of electricity, both those at the end of their life and those in operation, thus embarking on a path to reduce the emissions associated with both power generation from fossil fuels and the use of non-renewable materials.

It is a circular model that allows us to limit our dependence on raw materials as much as possible, while ensuring the following types of competitiveness and sustainability:

- environmental, by reducing the consumption of new resources and waste produced at the end of the cycle;
- social, thanks to the rethinking of the business model, based on the leveraging of products and services and as such more tied to specific and local skills and professional resources and less tied to automation;
- economic, thanks to the progressive reduction of procurement costs and the definition of new product-as-a-service models, thus reducing procurement risks and related uncertainties related to supply chains and external shocks.



Rethinking the raw materials cycle for a fair transition

In 2020, Enel launched a working group involving all areas of the Company to develop and update the raw materials strategy, with particular reference to so-called critical raw materials,⁽¹⁾ identify priority areas on which to act and implement solutions to manage the associated impacts and risks. In particular, the Working Group focuses on specific focuses, starting with the identification of raw material requirements for the Group's various activities, the identification of environmental and social impacts along the entire value chain, with particular reference to respect for human rights, the assessment of geopolitical risks (with potential disruptions to supply chains) and economic risks. The goal is the identification of priority areas of intervention in order to evaluate new solutions to mitigate risks and

impacts related to materials and related technologies that use them, as well as the definition of specific targets for each raw materials supply chain and related action plan, leveraging the innovation ecosystem (co-innovation with suppliers, start-ups, etc.), prioritization ranking of raw materials and *ad hoc* plans for the most relevant ones, geopolitical, commodities, environmental and social risk reduction strategies on new technologies and business models. All these focus areas are carried out by comparing and examining the best practices of each industrial sector, monitoring and analyzing the market trends associated with raw materials for key technological sectors (wind, solar, batteries, networks, etc.) and by collaborating regularly with all relevant stakeholders.

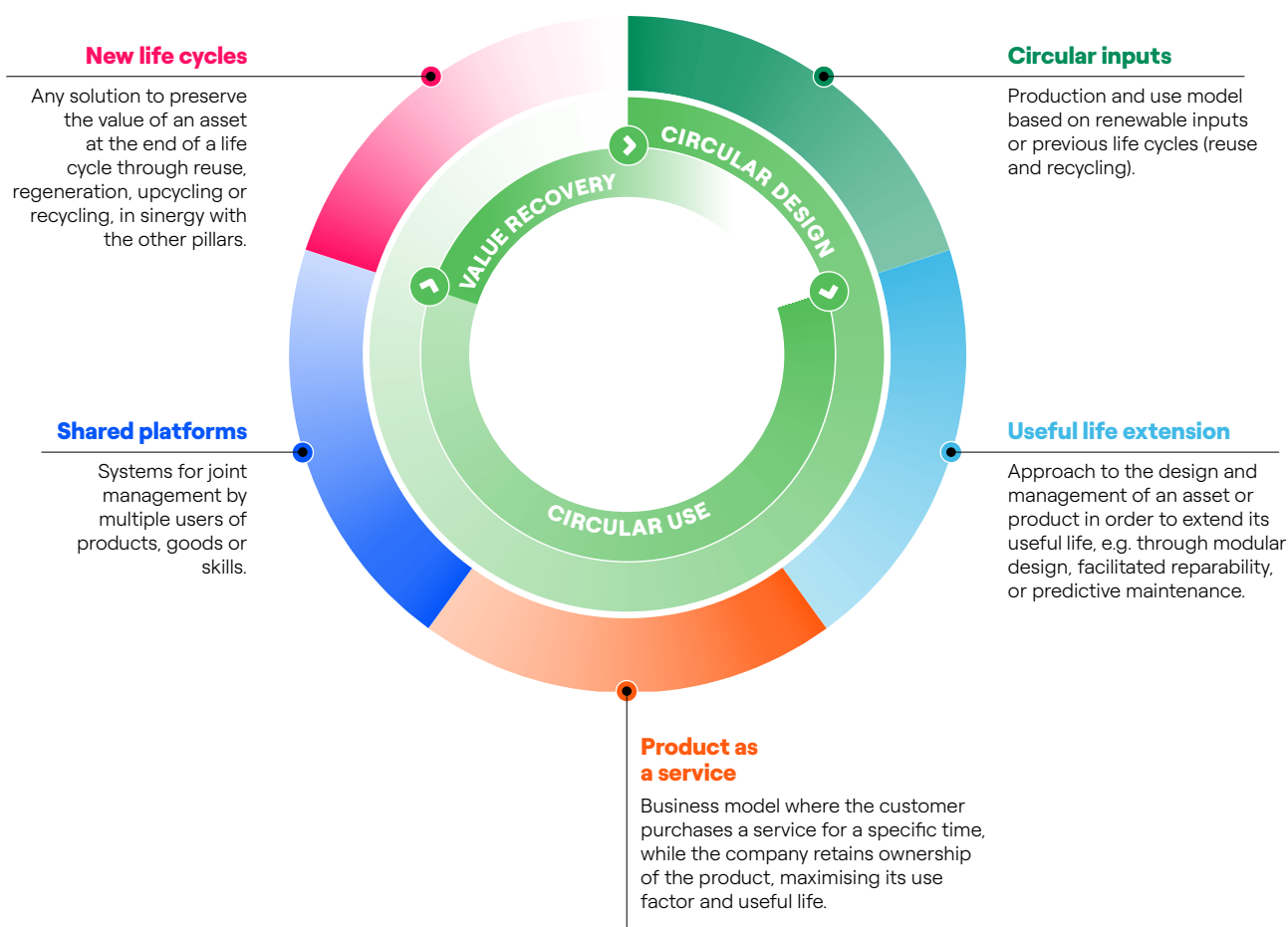
Enel's circular approach

The Group's circular vision is based on five pillars, which define the reference business models for the entire life-cycle of our assets and materials, and which act through three main levers: **circular design**, starting with the choice of input materials and design oriented towards life extension, up to the maximization of the use factor of the asset

and its value at the end of its life; **how the asset is used** (circular use), which includes life extension, the use of sharing platforms, the product as a service; and **closing cycles** (value recovery), through remanufacturing and recycling and reuse of recovered materials as a new circular input.



(1) For example, according to the list in the "European Critical Raw Materials Act" 2023, raw materials such as lithium and phosphorus.



The implementation of the Group's circular approach is based on the following main aspects:

- design and non-waste management: choices made at the design stage strongly influence subsequent stages by enabling efficient management of the asset during its useful life and maximizing its recoverable value at the end of its life;
- application in the core business: for change to be meaningful, it must *first* take place in the core businesses in order to make the Company circular;
- economic sustainability: for solutions to be developed on an industrial scale, they must also be economically competitive;
- measurement: only a quantitative approach linked to physical and economic indicators and challenging targets makes it possible to measure the effectiveness of the actions implemented and to guide business choices;
- collaboration: in order to implement a circular solution, collaboration both within one's own sector, with suppliers, customers and all players in the value chain, and with other sectors, as well as collaboration with the innovation ecosystem (start-ups, universities, etc.) and institutions, is crucial;
- innovation: innovation plays a fundamental role, not only technological innovation, but also innovation in business models, regulations, and modes of collaboration, for the realization of a new economic model. Innovative materials, artificial intelligence to enable predictive maintenance and the use of additive manufacturing to repair plant components are some of the technologies we are using to make our assets more circular. Start-ups, with their contribution of innovation and technology, play an indispensable driving role in the circular model (see the chapter "Innovation").

Main circularity projects

We are developing several projects mainly related to new assets (wind, solar, BESS, and grid development) and upcoming products/services for end customers, with the aim of reducing the consumption of raw materials, especially critical ones.

The initiatives focus on three of the five pillars of the model:

- **Circular design – use of circular inputs**

Several solutions to reduce raw material consumption use circular inputs i.e., from previous life cycles (use of recycled plastic for smart meters and charging infrastructure for electric vehicles or recycled aluminum for street lighting systems) or by identifying new solutions that use alternative and more sustainable materials (wooden towers for wind turbines, innovative wind blades made of fabric, or hybrid towers in which the base and first sections are replaced by a concrete pedestal that will be made directly on site, significantly reducing the use of steel). Another project in this sense is the partnership with Vulcan Energy to develop projects for geothermal lithium extraction.

- **Circular use – useful life extension**






Reducing the need for new assets also reduces the associated material requirements. Among the various initiatives implemented are the application of machine learning techniques for predictive maintenance in power

generation and distribution plants or advanced repair technologies such as additive manufacturing.

- **Value recovery – identification of new life cycles**

When an asset reaches the end of its useful life, the objective is to identify new life cycles through solutions that maximize the amount of recoverable materials in order to reinsert them into the production cycle. All the Group’s different Business Lines are actively involved in major asset recycling projects: from PV with the Photorama project, which aims to recycle 95% of materials, to sale for scrap metal recovery, to the recycling of power line poles, reusing the recovered material for new poles, to the construction in Spain of a battery recycling plant with a target capacity of 8.000 tons/year, up to a circular management of the Group’s decommissioned IT assets by giving them to employees, selling them to third parties or donating them for social purposes (see the chapter “Digitalization”). In addition, we are evaluating new models for the enhancement of secondary raw materials: for example, in Spain we are testing collaboration with plants authorized to process and recover scrap metal, in order to obtain secondary raw materials to be fed into new production cycles.

Here are some examples of projects implemented:

	 Storage	 Wind	 Solar	 Grid	 Customer solutions	Cross	
CIRCULAR DESIGN	Circular inputs	Geothermal lithium (Vulcan Energy)	Wind tower with wooden materials (3SUN)	Solar panels with recycled plastic	Circular Smart Meter with recycled plastic	Recycled plastic for EV charging stations	Materials passport
		BESS – New technologies for storage Thermal Energy Storage	Textile materials for wind turbine blades	Cell with copper replacing the silver (3SUN)		Recycled aluminum for public lighting systems	Sustainability K for procurement
		New storage technologies for storage: gravitational storage	Hybrid wind towers		Redesign of grid asset		
CIRCULAR USE	Useful life extension	2 nd life Battery Melilla (Spain)					Predictive maintenance
		Project PIONEER (Italy)					Repair through additive manufacturing
		Predicting failures software (IPCEI)					
VALUE RECOVERY	New life cycles	EV batteries recycling	Wind turbine blades recycling (Wind New Life)	Solar panel recycling (Photorama)	Grid mining		Sale of natural gas
							New models for the enhancement of secondary raw materials from scrap metal

Enel's Circular Procurement strategy aims to improve the circularity of purchased products and services through the definition of metrics (such as the EPD system, Environmental Product Declaration) to assess the whole-life environmental impacts related to the material and energy flows of the strategic product categories purchased, co-innovation with suppliers, and the use of tender requirements and rewarding factors to incentivize suppliers to offer in-

creasingly circular products. In addition, the Enel Group is developing tools and strategies to improve the tracking of materials along the value chain and to push suppliers to make efficient use of materials by focusing on recycling and recovery at the end of life and to increase transparency. See the chapter "Sustainable supply chain" for more details.

Technological innovation in solar panel production (3SUN)

The new HJT (Hetero Junction Technology) solar module that will be produced in 2024 in the 3SUN Gigafactory in Catania, Italy, is a latest-generation double-sided photovoltaic module that guarantees less degradation of photovoltaic modules and extends their service life to more than 30 years. Due to its high efficiency (around 24%) resulting from the possibility of using larger and thinner wafers, it will already use a reduced amount of silicon for peak power. In addition, as a further evolution, a new HJT Tandem panel is being developed that will significantly exceed the state of the art in photovoltaic cells in terms of efficiency, reaching more than 30%; this will increase the efficiency of a conventional module by 15-20% and allow more energy to be generated, with the same number of modules installed, thus requiring less material such as polysilicon. In addition, technologies are being developed to introduce recycled materials into the production process (such as replacing panel glass with recycled plastic) and the possibility of replacing the silver (a material with a high environmental impact used in the metallization process of the cell) with copper is being evaluated.



Andrea Tecci

Ecosystem and Circular Economy CC - EGP&TGx

"At 3SUN we are working to increasingly improve the circularity of the PV module and minimize the consumption of raw materials, working on its entire life cycle: using circular materials, improving its productivity, extending its service life and finally maximizing the quantity of material that can be recovered at the end of its service life. The aim of all of this is to make this technology increasingly sustainable and competitive."

BESS – New technologies for storage



Again with the aim of promoting the development of new, more sustainable materials and processes, a first innovative commercial alternative to chemical storage based on gravity technology will be installed. The plant will be commissioned in the United States in 2024. Specifically, the storage system will use excess electricity from the grid to move large blocks of cement material.

Another alternative solution that Enel installed in Italy at the end of 2022 is **Thermal Energy Storage (TES)** based on solid material and using rocks with high thermal capacity to retain thermal energy from the process fluid. Using common fragmented rocks, the TES system has the capacity to store up to 24 MWh of clean heat at a temperature of around 500 °C for at least 5 hours.

All materials used (rocks, pipes and casings) are to be considered environmentally sustainable as there are no chemical compounds or critical or flammable materials.



Redesign of grid asset



Several initiatives are underway within Enel Grids, which also leverage an innovation ecosystem to improve the circularity of different assets through design and the use of new materials.

The search for solutions with a lower environmental impact for distribution poles has also led Enel Grids to explore alternative materials to conventional ones; in addition to the use of recycled aggregates for the manufacture of new poles, an analysis is underway for the use of wood poles free of toxic impregnating agents with a design oriented towards total recyclability at the end of their life. Alternative solutions to conventional construction methods are also being tested, with 3D printing and for pile foundations, in order to reduce installation times and material consumption (see the chapter “Innovation”).

Also thanks to the Open Innovability® platform, challenges

were launched in 2022 to gather a new concept for the design of primary and secondary substations to promote their harmonious landscaping, the adoption of circular solutions in terms of both the materials used and the sharing of space with the community.

Circular Smart Meter – Closed loop recycling

From 2020, production of the new Circular Smart Meter began through a circular model and a pathway to redesign the value chain of the electronic meter, using material from discarded meters to make the new ones. About 2 million circular meters were produced in 2022. 48% by weight of the new meters are reclaimed materials: end-of-life recyclability (plastic, steel and other metals) is estimated at 79% by weight. Over its lifetime (15 years), each circular smart meter saves 7 kg of CO₂ and 1.1 kg of virgin material.

Circular EV charging stations



We have been working for several years on the products in the Enel X Way portfolio by revising their design to improve their circularity. In fact, our main AC (alternating current) charging products use recycled polycarbonate as their main structural material (100% for JuiceBoxes and 75% for JuicePoles). For the JuicePole, AC public charging stations

installed in 2022 alone amounted to 3,000 new points. The use of materials was also optimized, reducing the overall weight of the product by around 32%. Another example of a circular solution we have implemented is the recovery through remanufacturing of end-of-life components to be reused as spare parts.

Useful life extension of batteries



Enel is developing several solutions to extend the life of batteries, including the development by Enel X Enel X in the framework of an IPCEI project for artificial intelligence tools for predicting failures, anomalies and for modelling the degradation of lithium-ion batteries in order to extend their life and increase their reliability, optimizing operating and maintenance activity (project completion expected by 2023). A further strategy to extend the life of batter-

ies from the automotive sector is to reuse them "second life" solutions such as stationary storage systems.. Enel has developed a first solution of this type in Melilla (4 MW/1.7 MWh storage plant), realized through the reuse of about 90 batteries, and is completing another one with a nominal capacity of 2.5/10 MWh as part of the PIONEER (airPort sustainability secONd lifE battERY stoRage) project with Aeroporti di Roma.

"Wind New Life" project



The project proposes to develop a circular value chain to manage the end-of-life of wind turbine blades, through the development of two plants in Italy and Spain that will provide for the collection of the blades, their processing for production of second raw material and the reuse of the same for the production of high value-added components (building materials, sanitary and furnishing products, flooring, cabinets and electrical conduits). The Spanish plant, operational from 2025, will handle around 8,000 tons of material per year. In Italy, the aim is to manage around 3,000 of them by the second half of 2025.



Grid Mining



With the aim of maximizing the contribution to decarbonization along the entire value chain, a **Grid Mining & Zero Waste** model has also been defined, which, by considering grid assets as a mine to be drawn from at the end of life, allows the recovery and market leveraging of precious metals and other materials and devices from obsolete distribution infrastructures. In this regard, to ensure a complete tracking of the materials contained in the network assets from the input phase of the value chain, we have developed and digitalized in our systems the "Digital Product Passport" (DPP) that allows us to have a clear and detailed picture of the different types and quantities of materials in use. The DPP allows not only for monitoring any materials considered critical, for which it might be useful to evaluate an alternative, but also for defining *ex ante* end-of-life reuse assumptions. In this regard, the End of Life Dashboard was developed as part of the Grid Mining strategy. Starting with reverse logistics information on the type and number of decommissioned grid assets, in close connection with the DPP, it gives us information on the decommissioned materials, their quantity and type, and the possible CO₂ savings related to their reuse as "second raw mate-

rial". Having an integrated and digitalized tracking system along the entire value chain is the driving force toward the ambition to open our "mine" to the outside world as well, making it available to other companies or different sectors in order to involve their respective production chains and feed new markets for raw and secondary materials, promoting the development of the area and the saving of virgin materials, and creating new job opportunities related to waste material recovery initiatives while minimizing environmental impacts.

The recycling of photovoltaic panels (PV Recycling)

As far as the end-of-life recovery of photovoltaic panels is concerned, Enel is collaborating in the Photorama project (European Horizon 2020 program), which aims to automate the process of dismantling solar panels and to identify a handling process suitable for the recovery of valuable materials (purity greater than 99.9%), reaching a recycling rate of 95%. This solution will improve the recovery process in terms of both recoverable quantity and quality of the recovered material.

Circular cities and territories

Cities generate around 70% of global CO₂ emissions, accounting for over 60% of resource use and produce 50% of global waste. Numbers are destined to grow, according to city population estimates. It is also necessary to maximize the effectiveness of interventions in the main areas of urban life, prioritizing each sector: renewable energy,

pedestrianization, public and private electrification and promotion of flexible working models. For construction, the focus is on the development of fuel-efficient solutions and the use of materials that emit less CO₂. Enel has contributed to the development of this theme at the level of both vision and definition⁽²⁾ and business solutions.

Declaration of the Circular Cities of Latin America and the Caribbean

In October 2021, the “Declaration of Circular Cities of Latin America and the Caribbean” was launched at the Italy-Latin America and Caribbean Conference, during the event organized by Enel on Circular Cities. The initiative, realized by CEPAL (Economic Commission for Latin America and the Caribbean) and IILA (International Italo-Latin American Organization) with the aim of accelerating the development of the topic in Latin America through the definition

of a common vision, clear objectives and the sharing of best practices, aims to stimulate the adhesion of cities that desire to accelerate the transition towards a circular and more sustainable urban model. At present, the Declaration has already been signed by 8 cities on the Latin American continent (including Buenos Aires, Bogotá, Mexico City, Lima, Santiago) enhancing the centrality of the circular approach in local development policies.

Sustainable infrastructure

In the grids sector, Enel has adopted a “Sustainable by design” model: designing an asset with sustainable materials, minimizing emissions and consumption during construction, and favoring life extension, without excluding

recovery at the end of life. The José Granda Primary Cabin in Lima, Peru, is one of the first construction sites where the “Sustainable by Design” approach was adopted. For its implementation, several circular solutions were adopted to minimize waste and maximize material recovery: 930m³ of soil was reused and 520m³ of demolition residues recycled.

“Eco Enel – Brasile”

The Eco Enel project, launched in 2007, favors discounts on the electricity bill for customers who sort their waste and send it to specific collection and recycling points. The initiative was started in the State of Ceará and later extended to the States of Rio de Janeiro, Goiás and São Paulo. In 2015, it was included in the United Nations Development program (UNDP) report “Inclusive Markets in Brazil: Challenges and Opportunities of the Business Ecosystem” as one of the country’s 19 best practices. To date, the program has collected over 70,000 tons of waste and benefited around 300,000 customers annually.



(2) Enel has published four papers on the topic of circular cities, helping to develop the concept and addressing issues such as strategy development, reference models and governance. Below is the link to the latest edition: https://www.enel.com/content/dam/enel-com/documenti/media/circular-cities_october2021.pdf.

PPE recycling

The first phase of a project to provide a more circular end-of-life for the Personal Protective Equipment of our

colleagues started in Italy in 2022. The material collected will be used for the manufacture of sound-absorbing panels and anti-trauma floors for use in our Operational Training Centers, but also in city playgrounds.

Governance, metrics and targets of the circular economy

To ensure the implementation of the strategy and the organic nature of the circular transition, specific units have been created in Enel to support the Group's circular economy model. In particular, these areas are present in both the different Business Lines and in the different countries and regions, under the coordination of a Holding unit, so as to ensure a coordinated approach to strategies, share knowledge and experience, and foster the integration of circular economy principles into daily choices and activities. In particular, the Business Lines are redesigning or developing business models with a circular approach, while the units at country level are providing support locally to create new business opportunities and related sustainability initiatives in collaboration with the local ecosystem. Over the past year, the circular economy has been integrated with that of sustainability initiatives in order to ensure its strong synergy social issues as well as

to use the circular economy not only as a business theme but also as a model for fostering local development. In conjunction with the launch of its Circular Economy activities in 2015, Enel placed strong emphasis on **measuring circularity**. In the early stages, and in the absence of international reference methodologies covering the entire value chain, the Company developed its own circularity measurement model, the **CirculAbility Model**[®]. Based on the five pillars of the circular economy, this model represents the Group's vision on the subject matter, as it considers materials and energy in an integrated manner throughout all phases of the life of the asset. From this model, which represents the Group's conceptual framework, various indicators and applications have subsequently been developed in the various divisions, starting with supplier management and concluding with end customers.

Measuring the circularity of products for our customers

At Enel X, two different tools for measuring the circularity of customers have been developed to support them on a path to improvement: the Circular Economy Product Score, to measure the circularity of products in the portfolio, and the Circular Economy Report, to measure the circularity of customer products or sites at corporate level. The metrics adopted were reviewed and improved with the support of various partners such as ICMQ and CESI to develop certification schemes subject to accreditation by Accredia:

Circular CertificationTM – Corporate (accredited in 2022): consists of the analysis of the qualitative level of maturity and diffusion of circular economy principles in the corporate sphere, along the entire value chain, e.g. by assessing the circularity of various elements, such

as production inputs, design, procurement, corporate approach to the circular economy, etc.

Circular CertificationTM – Product (under accreditation): developed by Enel X and ICMQ SpA to measure the level of product circularity.⁽³⁾ It is based on the quantification of the circularity of material and energy contributions to the manufacture of products.

Circular CertificationTM – Energy Site (accredited in 2022): consists of a quantitative analysis applied to a specific customer site (such as offices, warehouse, etc.) analyzing electrical and thermal energy sources, in terms of consumption and generation, energy use efficiency, energy management practices, etc.

To maximize the spread of these certifications, in December 2021 Enel X founded the CircularEvolution association with ICMQ and CESI, with the aim of supporting the most virtuous organizations in implementing circular models.

(3) The scheme refers to the International Standards ISO 14040 and ISO 14044 that describe how to apply life cycle analysis to products and services (Life Cycle Assessment or LCA).

Enel has always been among the pioneering companies when it comes to identifying and adopting quantitative indicators at the Group level, indicators that can clearly represent the transition process towards circularity in terms of decoupling its business activities and related resource consumption. On Capital Markets Day in 2020, Enel made public for the first time a KPI related to its electricity gen-

eration activities that measures the consumption of raw materials throughout the life of power plants, in relation to the energy generated. With respect to this KPI, Enel is committed to a significant reduction in resource consumption with the goal of improving its circularity by 92% by 2030 compared to 2015.

Enel - first Company in the world to launch a circularity index with the aim of doubling it by 2030

We have developed a new indicator, the "Economic CirculAbility[®]", which takes the Group's overall EBITDA (in euros) and compares it with the amount of resources

consumed, both fuel and raw materials, throughout the value chain by the different business activities (expressed in tons). Enel presented this new KPI as part of the World Economic Forum 2023 in Davos, while committing to doubling this index by 2030 compared to 2020, thus halving the amount of resources consumed compared to EBITDA generated. Enel thus becomes the first Company in the world to adopt such a circularity indicator, and to set itself such an ambitious goal.

The ecosystem of circularity: the development of a "circular" culture and new ways of collaboration

As part of our focus on the circular economy, in addition to business-related activities, we also focused on dissemination and knowledge, organizing specific webinars (5 in all) on the circular economy in 2022, each focusing on a different aspect such as the energy transition, new technologies and decarbonization, social impacts, biodiversity and communication. The sessions were attended by institutions and organizations strongly committed to the circular economy and there were over 1,500 internal and external participants.

The full development of a circular business also requires a rethinking of the ways in which it relates to the outside world, with a reassessment of the usual negotiation and contractual models and some of the individuals typical of a legal system hitherto dependent on an economically linear world. With the aim of identifying regulatory or negotiated barriers to the circularity of the Group's activities, in 2021, and in conjunction with the legal and regulatory functions, a careful analysis of regulations and contracts was undertaken to identify innovative contractual solutions and standards to support circular business models and possibly

formulate regulatory proposals in different countries that could promote the development of the circular economy. The redesign of the economic model requires broad and deep change and continuous engagement with stakeholders, through the creation of an extended ecosystem (suppliers, customers, institutions, etc.) that is not limited to one's own specific sector, but progressively includes counterparts from new sectors and areas with which synergies can be developed.

Also crucial is the development and sharing of knowledge and experience through as wide a network as possible, since the circular economy is a fundamentally new topic with vast unexplored potential.

To this end, Enel is part of a number of networks to which it actively contributes, including the European Raw Material Alliance (ERMA), the European Battery Alliance, the Global Battery Alliance, the Global Alliance for Sustainable Energy, Open Power Grids, the Capital Equipment Coalition, the Alliance for the Circular Economy and the Coalición de Economía Circular de América Latina y el Caribe.

Alliance for the Circular Economy

The Alliance for the Circular Economy is the joint initiative of 12 Italian companies who aim to promote circularity in business strategies. The Alliance was established in 2017 with the signing of the Manifesto by “Made in Italy” companies, leaders in various manufacturing sectors. The Alliance intends to spearhead an overall evolution of the manufacturing context in a circular perspective that enhances the peculiarities of products “Made in Italy”, focusing on innovation, favoring the sharing of experiences and best practices and promoting a constant comparison with the entire ecosystem of stakeholders. The companies participating in the Alliance are interpreters of a transformative economy, of an innovative way of rethinking the entire production cycle, the use of resources and business models. The following are members of the Alliance: A2A, Aquafil, Cassa Depositi e Prestiti, CIRFOOD, Costa Crociere, Enel, Gruppo Hera, Intesa Sanpaolo, Gruppo Ferrovie dello Stato, Gruppo

Maire Tecnimont, Salvatore Ferragamo and Touring Club. During 2022, the Alliance published two guidelines documents on circular declarations and disclosures and on circular procurement. The first document developed a vademecum for the implementation of communication policies that adhere to the principles shared by the companies in the Alliance. The document includes a common definition of circular economy and a set of key principles that companies must consider when making circular statements and disclosures. The second document includes a set of criteria and tools aimed at including circularity criteria in procurement processes, a theoretical and organizational framework for implementing circular procurement processes, and a common questionnaire for supplier engagement. The incorporation of these principles and criteria into the activities of the Alliance companies is intended to lead to a more coherent implementation of the circular economy concept in the Italian business context, and may also set an example for small and medium-sized companies that wish to adopt them.



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Companies Register of Rome and Tax I.D. 00811720580

R.E.A. of Rome 756032 VAT Code 15844561009

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