



# **OPEN POWER FOR A BRIGHTER FUTURE.**

WE EMPOWER SUSTAINABLE PROGRESS.

**CIRCULAR ECONOMY**



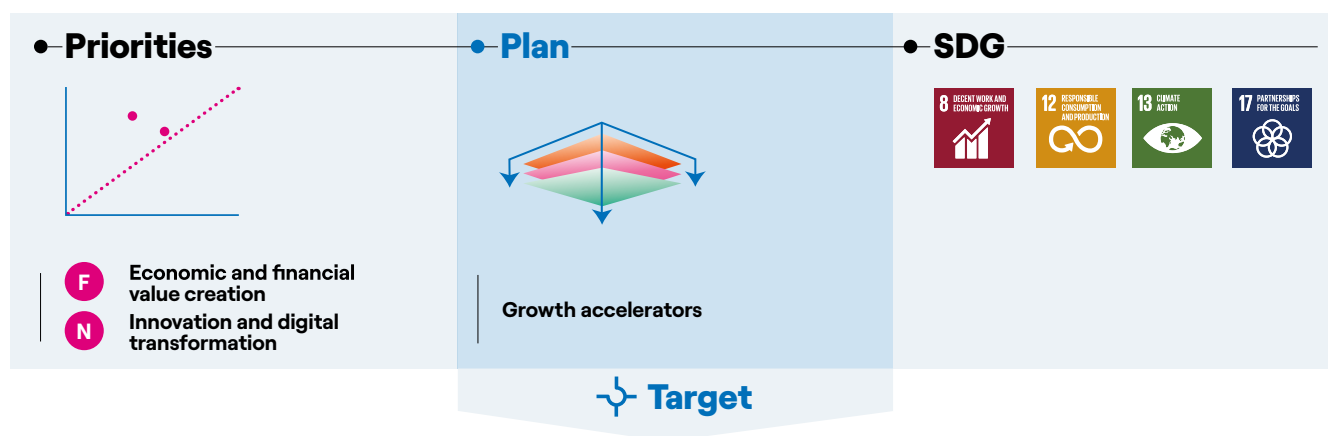


Global Compact  
**LEAD**  
2020 PARTICIPANT

**OPEN POWER  
FOR A BRIGHTER  
FUTURE.**



# **CIRCULAR ECONOMY**



Activities	2020-2022 targets	2020 results	Status	2021-2023 targets	Tag	SDG
<ul style="list-style-type: none"> <li>Development of Circular Community activities</li> <li>Starting of the Circular Academy</li> <li>Promotion of the culture and best practices of a circular economy at Global Business Line, Global Procurement and Country level</li> </ul>		<p><b>Circular Community:</b> ongoing activities in Chile, Colombia, Peru, Spain, Italy; webinars carried out to share projects</p> <p><b>Circular Economy School:</b> three editions held for about 180 'student' colleagues</p> <p><b>Practice sharing:</b> platform set up for internal sharing of projects and best practices</p> <p><b>Communication and culture:</b> internal communication campaign and the creation of the eCircular platform to raise awareness on the topic among Enel's people</p>	ON-PLAN	<div style="text-align: center;"> </div> <p>Target exceeded and merged into new objectives</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">I</div> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">E</div> </div>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #f15a24; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">12</div> <div style="background-color: #0070c0; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">17</div> </div>
Definition and implementation of circular economy solutions in collaboration with the various business areas		Circular economy solutions developed at Global Business Line / Country level and in cross-cutting areas	ON-PLAN	<div style="text-align: center;"> </div> <p>Definition and application of circular economy solutions and new business models focused on key technologies<sup>1</sup></p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">I</div> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">E</div> </div>	<div style="background-color: #f15a24; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">12</div>
Creation of an ecosystem dedicated to the topic of circular economy in the most relevant countries where the Company operates		Initiatives developed to drive the transition to circularity at national level (Argentina, Brazil, Chile, Colombia, Italy, Peru, Spain, United States <sup>2</sup> )	ON-PLAN	<div style="text-align: center;"> </div> <p>Target exceeded and merged into new objectives</p>	<div style="display: flex; flex-direction: column; align-items: center;"> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center; margin-bottom: 5px;">I</div> <div style="background-color: #a0c4ff; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">E</div> </div>	<div style="background-color: #f15a24; border-radius: 50%; width: 20px; height: 20px; display: flex; align-items: center; justify-content: center;">12</div>

## Goals




New



Redefined



Outdated

Activities	2020-2022 targets	2020 results	Status	2021-2023 targets	Tag	SDG
Definition and application of suitable industrial and financial circularity metrics to support and enhance circular economy activities, engaging the respective business areas		<ul style="list-style-type: none"> <li>• KPIs set to monitor CE initiatives; dashboard for CEO Business Review; KPIs for Market</li> <li>• Collaboration with the Ellen MacArthur Foundation for the development of Circulytics</li> </ul>	ON-PLAN	<ul style="list-style-type: none"> <li>• Start of data collection for Group financial/industrial KPIs</li> <li>• Consolidation and adoption of potential other Business Line/ Country-specific KPIs in 2021</li> <li>• Definition of the Group's financial/industrial objectives on the circular economy in 2022</li> </ul>	 I E	12
Strengthening of partnerships and collaborations		<ul style="list-style-type: none"> <li>• Members of: Ellen MacArthur Foundation; Capital Equipment Coalition; Circular Electronics Partnership; Italian Circular Economy Stakeholder Platform; expert group on financing the circular economy; European Remanufacturing Council</li> <li>• Extension of the circular economy alliance and participation in the WBCSD Built Environment Working Group</li> </ul>	ON-PLAN	Strengthening partnerships and collaborations with international networks, companies from other sectors, external players focused on the development of "circular cities"	 E G	12 17
Improving circularity <sup>3</sup>	+	+		86% by 2030	I E	8 12 13
Development of internal skills, culture and know-how on the circular economy	+	+		Training activities, CE community development, internal communication and sharing of best practices	I E S	12
Stepping up the sharing of best practices and knowledge on the circular economy with external stakeholders	+	+		Collaboration by drafting position papers, taking part in working groups, and through dissemination activities	I E S G	12
Engaging with start-ups	+	+		Engaging with startups to accelerate the transition to the circular economy	I E G T	12 17

(1) Key technologies such as wind power, photovoltaics, smart meters, electric vehicle charging stations, electric vehicle batteries, etc.

(2) For example, circular solutions have been implemented to solve social problems and advance the culture of the circular economy (circular Covid masks in Italy and Argentina).

(3) Lower material and fuel consumption of the Group's plants throughout their life cycle compared to 2015.



## Useful life extension

Approach to the design and management of an asset or product in order to extend its useful life, e.g. through modular design, facilitated reparability, or predictive maintenance.



## Product as a service

Business model in which the customer purchases a service for a limited time, while the company maintains the properties of the product, maximizing the utilization factor and useful life.



## Shared platforms

Management systems in common among multiple users of products, assets, or skills.



## New life cycles

Any solution to preserve the value of an asset at the end of a life cycle through reuse, regeneration, upcycling or recycling, in conjunction with the other pillars.

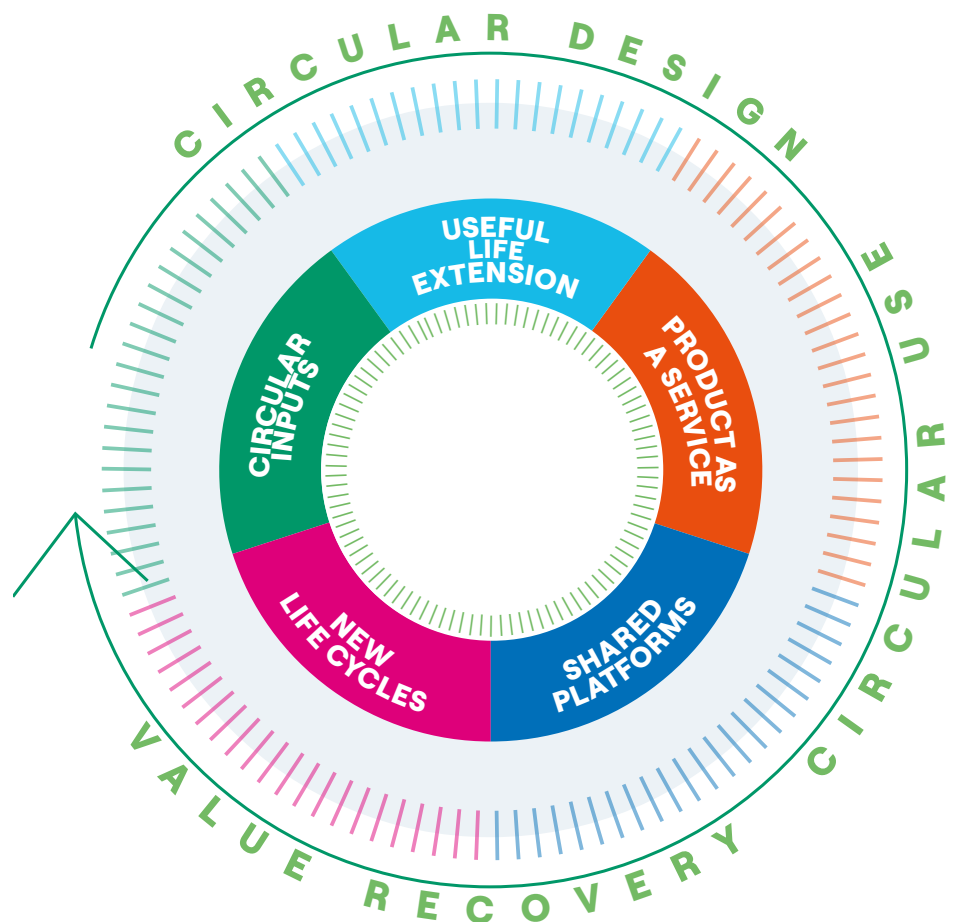


## Circular inputs

Production and use model based on renewable inputs or previous life cycles (reuse and recycling).

# CIRCULAR ECONOMY

The growing penetration of renewable sources, together with greater use of the electric carrier by our customers, is capable of boosting opportunities deriving from the circular economy and represents the only path towards the decarbonization of the economy and the society in which we live at the speed we need, considering the critical environmental situation of the planet. According to recent studies, the circular economy can contribute up to almost half the global effort toward reaching the decarbonization objectives. The European Union has given a strong impulse toward regulating the circular economy and subsequently, also other governments, cities and territories on all continents have started to develop these issues. Enel actively participates in the discussion on every institutional level, from supranational to local, in order to support this transition both in terms of vision and content and in terms of design.



Manage energy and commodities by focusing on the sustainability of what we do, in order to ensure development and results.

## Why is it important for our stakeholders?

**W**e have been operating for some time now with the aim of developing business and achieving results with the full involvement of our stakeholders. Our commitment to circularity is a further step in this direction.

Forward looking companies in all sectors have embraced this vision in the last years. Enel started down this path many years ago, and now the circular economy represents a true strategic driver in Enel's business as well as a growth accelerator along the entire value chain.

Rethinking the business model from a circular point of view is first of all a challenge not only in terms of technological innovation but also in terms of collaborating in an increasingly close manner with our own ecosystem.

To reduce the consumption of non-renewable materials and energies, we need to act on one hand on the resources used as input, switching from resources from non-renewable sources to renewable sources or recycled input, and on the other hand on models of reuse, sharing or product as a service (PaaS), regenerate or recycle.

Enel's approach for the circular economy is extremely open and transversal, and recognizes that innovation plays a central role that is not limited to technical aspects, but concerns all dimensions of our business: technology, business models, contractual frameworks, collaborations along the internal and external value chain, regulatory and institutional context, etc.

### **For Enel, the circular economy:**

- > is not just a topic of environmental management, but much more than this: it concerns redesigning the entire



**Claudio Machetti**

Global Energy and Commodity Management

## Why is it important for Enel?

**O**perating in a sustainable way is a priority for us, and we place the environment and people at the center of our development model. We have moved along this pathway by integrating circular management into our activities.

economic model and therefore transversal governance is needed with respect to economic and environmental areas, on every level (from institutional to corporate);

- > covers the entire value chain but places greater attention above all on the initial phases of designing the products and goods and defining the business models;
- > has to be supported by innovation and the financial and insurance sector to be able to reach its full potential;
- > requires constant updating of the legislative framework, which was established over decades in a context dominated by a linear approach;
- > requires transversal systematic collaboration between public and private along the value chain (suppliers-company-customers), cross-sector, etc., also through open governance tools;
- > must be supported by solid metrics that make it possible to appreciate its progress, as well as training in order to develop a new circular culture.

The circular economy makes it possible to switch from a model based on the consumption of environmental resources, with the increasing contribution of automation, to a model based on maintaining the value of products and goods, where human work can have an increasingly relevant role.

The main potential social impacts are:

- > **employment**, with the creation of new professional profiles in all sectors (not only related to the creation of specific sectors, but above all the redefinition of existing sectors from a circular point of view);
- > **social**, with benefits deriving from new circular solutions in terms of access to products and services at a lower cost, thanks to solutions such as reusing, recycling, sharing, PaaS;
- > **professional**, with new opportunities related to professional requalification, the sharing of skills, the creation of new, more transversal profiles, the recovery of more 'artisan' skills, etc.

## The governance of the circular economy

The success of this transition also requires the definition of an effective governance. The circular economy is a transversal topic and is not associated with only one area, rather it is an approach to be adopted in all lines of business. For this reason, it is of fundamental importance for this approach to be coordinated regarding the strategy, context, skills and that it supports every staff and business area for its effective adoption.

For this purpose, specific areas have been created in Enel in various Business Lines and various Countries which are coordinated by a Holding area. In particular, whereas the Business Lines redesign or develop business models from a point of view of the circular economy, the units on a country level provide support locally to the development of business opportunities, with considerable collaboration with the local ecosystem.

## The circular activities of the Business Lines and the main projects

In order to apply a circular approach in a systematic manner, Enel is working in a transversal and integrated manner in all of its business areas and involving suppliers and customers. This results in a structured and effective approach so they can redesign their own model.

For this purpose, the main areas of activity concern the following aspects.

## Suppliers

The Circular Procurement strategy that Enel is promoting is divided into the following steps:

- > **involvement of the suppliers: insertion of specific K factors** or requirements during the tender phase to reward the commitment of the suppliers in their transition toward the circular economy;
- > **definition of metrics and measurement of environmental impacts** of what is acquired by means of the Environmental Product Declaration (EPD). Currently, on a global level, approximately 200 suppliers are involved in 12 product categories, which today represent more than 60% of the expense for purchasing materials; for the remaining categories, works and services, certification is being applied (Carbon Footprint, for example);
- > **co-innovation**: starting projects with suppliers in order to jointly redesign the life cycle of goods, also by modifying customer requirements.

## Assets

The circular approach is applied along all the main phases of the life of the assets (power plants, electrical grids, etc.): from the planning (design and input material selections), implementation (management of construction site phases) and operation (maintenance oriented toward extending their useful life) up to decommissioning (management of areas, equipment, materials and infrastructures in order to identify new life cycles through reuse, upcycling, remanufacturing, recycling, etc.).

### Global Trading

Various strategies are being defined for managing assets from a circular point of view, and taking the specific aspects of the various assets into account, also considering the secondary raw materials that can be recovered and identifying more efficient valorization methods, both within the Company and in other markets.





# Global Power Generation

The photovoltaic value chain is currently being redesigned – on the one hand by working on the circularity of the input materials (by evaluating the use of materials such as recycled plastic) and on the other by identifying solutions that maximize the recovered value at the end of their service life.

Furthermore, in order to make the wind supply chain more circular, innovative technologies are being evaluated for the recovery of the wind blades at the end of their service life, also by exploring cross-sectoral collaborations, such as the possibility of reusing the recovered material in the construction sector.

## Spare parts and equipment New Life

The application of sustainability and circular economy approaches to the decommissioning of coal-fired plants has generated environmental and economic benefits. The “Spare parts and equipment New Life” project, which was launched in February 2020, has precisely the objective of giving new life to the components in the warehouses and to the equipment of the coal-fired power plants being de-

commissioned and to obsolete material from all the other thermal power plants.

This has been made possible by the identified and defined target options, i.e. five business models based on the principles of the circular economy: reuse, resale, donation, recycle and, if applicable, in-house Enel projects.

As of today, the project perimeter includes materials in the warehouse and equipment (components) from five countries – Italy, Spain, Russia, Chile and Argentina – and 14 plants.

The main opportunities that have been completed include, for example, the in-house reuse of various materials and components in Italy, Spain and Chile. This has made it possible to obtain, in addition to benefits in terms of sustainability and circular economy, a total value of avoided costs equal to approximately 1.4 million euros.

Furthermore, sales initiatives have been started with third parties, for example for material in the R-GRES warehouse in Russia and in the coal mills of Teruel in Spain.

There are many opportunities in the pipeline, which cover all five business models; their activation is therefore the objective of the program for the upcoming months. Progress is measured by *ad hoc* indicators that have been defined for the project and are periodically monitored.

# Global Infrastructure and Networks



The value chain of the grid assets is currently being analyzed, with the objective of creating long-term value by focusing on two main levers: regeneration of end-of-life asset materials and introduction of a circular approach during the design phase. In 2020, experiments were completed for the regeneration of the plastic coming from decommissioned counters to be used for the production of new counters, and an analogous process was developed in Brazil. Experiments were also started regarding the regeneration of the materials of other grid assets (for example, the supports for the electrical infrastructure and the boxes for the electronic counters).

## Circular Open Meter

Enel has embarked on a challenging path aimed at redesigning the value chain by adopting a circular economy model in order to reduce environmental impacts by maximizing the recovery of end-of-life products and materials.

With the progress in Italy of the **plan to replace 32 million first generation meters**, Enel has decided to transform their disposal into an opportunity by using the material originating from the counters being decommissioned to make the new **"Circular Open Meter"**.

When developing this device, a process was perfected for the selection and regeneration of the polycarbonate taken from the meters being decommissioned, which can be replicated in the future in all countries of the Group, if the physical and mechanical characteristics of the recycled plastic material permit doing so. In **June 2020, the NMI Certification Body (Nederlands Meetinstituut) for the MID Directive** (Measuring Instruments Directive) approved the use of the regenerated plastic for the **Open Meter**. With this certification, which guarantees the quality of the regeneration process, produc-

tion started for the first batch of the **30 thousand Circular Open Meters**.

**Made of 100% regenerated plastic**, the new counters make it possible to minimize the environmental impact to the benefit of customers, the territory and the environment. In particular, with the application of the "Life Cycle Assessment", a standardized assessment method on an international level that quantifies the impact of a certain product on the environment, it was estimated that **for the first batch** there was a **reduction of 210 tons of CO<sub>2</sub> emitted** as compared to the traditional process. Furthermore, thanks to the reinsertion **of the waste material of the old devices in the production process of the new Circular Open Meters** (mainly plastic), **also a reduction of 31.5 tons of waste was estimated**.

**In percentage terms, 48% of the new meters by weight is made of regenerated materials. It is also estimated that 79% by weight of the Circular Open Meter (in addition to plastic, also the metals and steel) can be recycled at the end of their service life<sup>1</sup>.**

The Circular Open Meter is therefore a perfect example of the circular economy, a large step forward toward an industrial model that is increasingly sustainable, innovative and efficient along the entire value chain.

In order to stimulate the market toward higher standards that can be both an example and a driver for other companies, both suppliers and customers, Enel X provides innovative advisory tools capable of guiding companies and public administrations in defining and implementing sustainability programs. The entire process, which is unique in its completeness and innovativeness, is called the **"Enel**

(1) Hypothesis: 90% recycling rate of the polycarbonate used as input; 95% recycling rate for the end-of-life materials (polycarbonate, steel, copper, polyamide, others such as silicon and aluminium).



# Customers

Customers are involved, on the one hand, by offering them products and services that are increasingly circular and, on the other, as regards industrial customers and the public administration, by supporting them in measuring and improving their own circularity.

Enel X offers innovative products and services, promoting

the electrification of consumption and the transition toward renewable energy in areas such as electric mobility, heating/cooling, grid flexibility, etc. Furthermore, with the Circular Economy Boosting Program, which is a continuous measurement and improvement process, Enel X makes the solutions in its portfolio increasingly circular. Similarly, Enel X supports industrial customers and the public administration with the Circular Economy Report, which measures their circularity and defines a roadmap for improving it.

## The Enel X Laboratory in continuous evolution



**X Circular Economy Boosting Program**", precisely to underline and emphasize the acceleration/boost aspect and therefore the dynamism and commitment that the entire company constantly demonstrates to pursue its sustainability and circular economy objectives. The advisory service, which supports the recovery of Italian companies and public administrations, includes the following tools.

### Enel X Circular Economy Client Report

During 2020 approximately 50 Circular Economy Client Reports were completed, which supplied customer companies with solutions for generated savings on a yearly basis of more than 7,000 tons of CO<sub>2</sub> and 10 GWh of energy. In Italy, important **partnerships were established with the main bodies and strategic companies that represent the territory**. The objective is to transfer knowledge about the circular economy as a sustainable business model able to generate opportunities that are economically advantageous and competitive, both for the territory and for customer and partner companies internationally.

### Enel X Circular Economy PA (Public Administration) Report

To accompany the public administration toward a more sustainable and circular approach, Enel X has developed an assessment model that aims to evaluate the level of circular maturity of municipalities and identify a series of solutions to implement within a roadmap of concrete interventions that have an impact on the territory. This assessment is performed on both levels of analysis: on a level of the entire urban/city perimeter and on the level of one or more specific sites (buildings and public structures) with a focus on energy circularity.

For cities, the assessment covers five survey areas: circular economy, energy, mobility, waste and emissions. Each of these areas is assessed based on four dimensions and specific indicators associated with them, which are useful for identifying the level of circular maturity of a city:

- > **governance & policy:** existence of targets and plans for promoting the circular economy and related issues on

a local level;

- > **support tools:** promotion of initiatives and incentives, by the administration, so that citizens and companies improve their approach to the principles of the circular economy;
- > **digitalization:** adoption of digital tools to enable the development of circular behaviors by citizens and companies;
- > **status quo:** assessment of quantitative aspects related to the management of energy and material sources from a circularity point of view.

Furthermore, in order to automate it and make it even more usable, both for large urban centers and small cities, the model is currently being updated thanks to active collaboration with academic and institutional partners. In this way, it will be possible to further extend the area of analysis, adding new areas and indicators and including new data sources, comprehensive of those available via open data.

#### **Enel X Circular Economy Product Score**

As instead regards products, the starting point for the Circular Economy Boosting Program is the Circular Economy Score, which allows the degree of circularity of the solutions in the portfolio to be measured. Each product and the upstream and downstream supply chain can in fact be assessed based on parameters of the circularity assessment metrics. This obtains a “product score” that serves two functions: on the one hand to calculate the environmental impact and define possible improvements to the production cycle, on the other to measure the effectiveness of the proposed change. The obtained score is then used as the starting point for applying the Circular Economy Boosting Program and increasing the circular maturity of the product through “product innovation” and “redesign”

processes, in order to increase the level of circularity and sustainability. An example of an Enel X product for which the Boosting Program was applied is the device for charging electric vehicles for private individuals, the Juice Box.

#### **Juice box and the circular economy**

The application of the principles of the circular economy to the production cycle can provide a considerable contribution to the adoption of behaviors that are more responsible with respect to the planet. An emblematic case of a product score with the aim of improving its sustainability is that of the Juice Box, the latest proposal of Enel X for charging electric vehicles for homes and companies. The Circular Economy Boosting Program was able to identify the lever for increasing the level of circularity of the product and, at the same time, combat pollution created by the plastic used to make the encasing of the small charging station. The procurement of the virgin plastic was replaced by recycled plastic, with the identification of new suitable suppliers and designing and implementing an innovative product inspired by the principles of circularity. After the tests confirmed the results in terms of performance comparable to what was obtained using virgin plastic, at the end of 2020 the first 3 thousand Juice Boxes saw the light of day. In 2021, in Europe only, more than 30 thousand new Boxes will be produced, therefore using approximately 62 tons of plastic waste for their manufacturing, with an additional roll-out already planned in other Countries and Regions.

## **Digital**

The digital area is a fundamental part of the Company and represents a circularity enabler. By developing initiatives for the circular management of IT assets (for example, extension of the useful life and reuse of the devices) as well as

other digital solutions that enable and accelerate circular business models (for example, machine learning techniques intended for predictive maintenance, digital management of information about materials, etc.).

# Targets and performance indicators

One of the main challenges for the true adoption of a circular economy model is the definition of criteria and reference metrics on an international level that make it possible to distinguish between circular and non-circular solutions, measure the impacts, define the objectives and understand the improvement levers.

Enel measures the economic performance of the new initiatives of all the Business Lines through a periodic metric presented to top management, which measures the environmental impacts and economic performance differentials of this new focus. In particular, a first set of indicators, which are more operative, is used to monitor the activities and initiatives developed on a Business Line as well as a country level. In parallel, an integrated Group process is be-

ing developed in order to measure the material and energy parameters related to the five pillars of the circular economy, in physical and economic terms.

## CirculAbility Model

About four years ago, Enel developed and perfected a conceptual model for defining the measurement of the circularity of its business, and made it public online to spread the knowledge and promote the adoption of circular economy models.

The model, which is called the CirculAbility Model, defines the five pillars of circularity in a quantitative manner and simultaneously manages both the material component and the energy component, providing a single circularity indicator<sup>2</sup>.



(2) <https://corporate.enel.it/en/circular-economy-sustainable-future/performance-indicators>.

The model has been shared with other industry operators, competitors and institutions, to provide a proactive contribution to the dialog. In coherence with the Group's vision, specific approaches have been developed for the various targets:

- > **Procurement:** the supply categories are subjected to a systematic analysis of the entire life cycle ("Life Cycle Assessment"), using the EPD (Environmental Product Declaration) to track environmental impacts and all material and energy flows during the supply generation process;
- > **Circular Assets:** in order to manage Group assets with a circular approach, the circularity of the design, construction, operation and end of life phases is measured, making it possible to identify operating initiatives that make it possible to increase the overall process circularity rating;
- > **Enel X:** measurement of the level of circularity of the products and services offered to customers (in order to provide a tool of comparison for interested end consumers sensitive to environmental issues) and of the circularity of industrial customers and the public administration.

## Group circularity indicators

In order to measure the circularity of its activities in a precise manner, the Group is increasingly focused on analyzing the evolution of the consumption of resources associated with its business activities.

In line with the productivity indicators of the resources, also provided by Eurostat, we measure the consumption of material for its entire life considering the whole value chain.

As regards the generation capacities, this involves measuring the consumption of resources over the entire life in connection to a power plant: from the extracted raw materials, to the consumed materials and the energy used during the phases of manufacturing, construction, operation and decommissioning. This aggregated value is then compared with the energy produced over the entire life. This indicator, on an aggregate level, was presented at Capital Markets Day 2020, and was defined a target for 2030 for improving circularity by 86% in comparison to 2015 in terms of consumption for the entire useful life of the materials and fuels for the generation capacity (the value achieved in 2020 was 54%).

The objective is to more deeply analyze these impacts by technological supply chain, in order to progressively reduce the Group's impact on the consumption of resources, tracking the individual materials in an increasingly detailed manner. This represents a fundamental step for ensuring that the transition toward renewable energies and electrification of final demand does not generate in turn new

environmental, social and procurement challenges related to the utilized materials.

The systematic development of these analyses makes a bottom-up aggregation possible to improve the overall impact in terms of Group resources as regards the activities carried out.

## Circular EBITDA

The circular economy is closely connected to the creation of not only environmental value, but also economic value; it is also measurable in a quantitative manner and therefore can permit a connection between industrial and financial metrics. These hybrid metrics are being defined, also sharing the approaches with various stakeholders inside and outside the Company, and precisely defining the development criteria in compliance with various international forums regarding sustainable finance.

In general, circular EBITDA takes 3 categories into consideration:

- > **Circular Product & Service – Circular P&S** (supply of products and services that enable the circularity of customers): sectors considered circular due to the type of products or goods that they supply, renewable energy, charging systems with PaaS for electric mobility, etc.;
- > **Circular Value Chain – Circular VC** (adoption of circular input and development models): each sector, regardless of the type of output, can insert circularity along its entire value chain in terms of design, materials, etc.;
- > **Enabler:** functions that do not have a direct impact on circularity in terms of material and energy flows, but that are essential because they enable the other areas (for example, digital, supplier management, etc.).

In line with the Group CirculAbility Model, the levers to use concern both the flows of material and energy (circular flow, both input and output) as well as the business models (extension of the useful life, PaaS, sharing).

The three categories can overlap: for example, the sector of renewable energy can be put in the Circular P&S category, but, if also the entire supply chain – from materials to installation and decommissioning – is inserted in a circular point of view, therefore it can also be put in the Circular VC category.





## Circular city

Enel already started working on the topic of circular cities many years ago, with the awareness that the evolution of the cities cannot be approached only from the point of view of individual technologies or individual sectors, but requires a transversal vision, a clear definition of the economic, environmental and social objectives as well as open governance. Cities are responsible for approximately 80% of global GDP, and are also the areas where the global challenges are most critical, because they contribute to more than two thirds of emissions and the world-wide consumption of natural resources. Therefore they represent a laboratory for the definition and implementation of solutions that provide a concrete contribution to the solution to the global challenges. With its vision of the circular city, Enel has discussed and collaborated with associations and companies in other sectors to define the context within which it can make its contribution. When expanding upon this viewpoint, technologies still maintain a central role; for example infrastructure is an aspect that permeates all the areas: smart grid, smart lighting, ports, fiber optics. New technologies play a key role, as well as the most important renewable technologies and IoT (Internet of Things) solutions: they represent a new paradigm able to eliminate global and local pollution

emitted by current technologies and improve the quality of life of citizens.

Enel has contributed to this design not only in terms of business solutions and services, but also with theoretic thinking, for creating awareness and for sharing ideas on this topic. Three years ago, Enel published its first position paper on circular cities, with the study reaching its third edition in 2020, which has placed emphasis on a key topic for the effective and organic implementation of the circular economy: public-private collaboration (<https://www.enel.com/content/dam/enel-com/documenti/media/paper-circular-cities-2020.pdf>).

## The involvement of the ecosystem

A circularity-based business model implies the utmost collaboration between all actors involved; that's why we consider it essential to open up to dialogue with parties who share this vision, involving the supply chains and promoting common initiatives to safeguard natural resources and boost competitiveness of the ecosystem.

It is not possible to search for a circular solution only within a company or its business sectors, rather it is necessary

to also explore synergies with other sectors with which the company never worked together historically.

For example, for this purpose Enel is committed to a global initiative after joining the **Capital Equipment Coalition**, which is a coalition of leading companies on the topic of the circular economy.

Furthermore, for this purpose, in 2017 Enel, together with many other "Made in Italy" companies in various sectors, launched the Circular Economy Alliance.

Another key element for supporting the creation of a circular ecosystem is the participation in **international networks** in order to contribute toward the discussion regarding how to accelerate the transition toward a circular economy, sharing the best practices and identifying possible synergies and collaborations. With this objective, Enel is part of various networks, such as:

- > Ellen MacArthur Foundation;
- > World Business Council for Sustainable Development;
- > European Remanufacturing Council;
- > Italian Circular Economy Stakeholder Platform.

The active participation in these networks, in combination with a collaborative approach with the external world and with a focus on co-innovation with our suppliers and customers, is of fundamental importance in order to create an innovative ecosystem with the objective of making the various value chains more circular.

## A new circular culture

A transformation like the one represented by the transition toward a circular economy model requires a commitment also in terms of skills, work methods, integration.

Enel has made a strong commitment to promoting the culture of circularity, both within the Company and externally. Therefore, we make use of our experience and our knowledge on this topic to create informational and educational content to share with stakeholders both inside and outside the Company. Inside the Company, Enel educates its employees and spreads the circular economy through instructional and training activities, such as the online course on the circular economy as well as *ad hoc* training sessions for specific functions that play a role in key activities related to the circular economy. For this purpose, a **Group Circular Economy School** was established, which involved approximately 180 Enel people during 2020 in Europe and Latin America over a period of two weeks per edition. The participation and topics faced were

intentionally transversal with respect to the professional areas in order to promote comparison and rethinking in as broad a manner as possible. All business areas and staff Functions participated in addressing technological, process, business model, contractual, regulatory, institutional topics, etc.

Furthermore, various **communities** were created to support the activities and promote the culture and best practices of circular economy across all areas.

An additional important element was the launch of the **e-circular platform**, which is an in-house company platform with the objective of supporting the development of the "circular" behavior of people, therefore also projecting what the Group is facing in business onto a personal level. Colleagues can use the platform to make their skills available (for example for language exchange), offer goods or search for items. Furthermore, the platform represents a focal point for all the circular culture initiatives promoted in Enel through information, news and multimedia content regarding the circular economy.

An additional innovative element was the creation of a Business **Simulation Game session**, in which Enel people in the various countries tested their knowledge about transforming a business from linear to circular by acquiring new levers.

Circular is Cool is the name of the project that Enel X has created for schools, together with Humans to Humans. Contributing toward the creation of a culture of sustainability and circularity means, in fact, also teaching the new generations to respect the planet, our home. The educational project involves approximately 1,000 students from ten middle schools in seven Italian regions, and includes a cycle of three online tutorials, thanks to which the participants will be able to learn about the principles that are at the basis of the circular economy model and its **concrete applications**, for example in the mobility sector, listening directly to the managers themselves. Finally, Enel puts young talents to the test regarding the circular economy and innovation with two programs, **PlayEnergy** and **We are Energy**, which have the objective of developing and enhancing young talents.

PlayEnergy is directed outside the Company, involving young innovators between the ages of 7 and 18 in the search for solutions for a better future, using their creativity and their imagination. The 2020 edition actively involved more than 7,500 young people from Italy, Brazil and Greece. We are Energy is instead a program intended exclusively for the children of colleagues in all the countries where we operate between ages of 7 and 18. The 2020 edition, which was called ReciproCity, focused on the circular, inclusive and sustainable city, with the participation of more than two thousand young people from 16 countries.





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