

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.

