OPEN POWER FOR A BRIGHTER FUTURE.

WE EMPOWER SUSTAINABLE PROGRESS.

Our performance 2022

Zero emissions ambition

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.

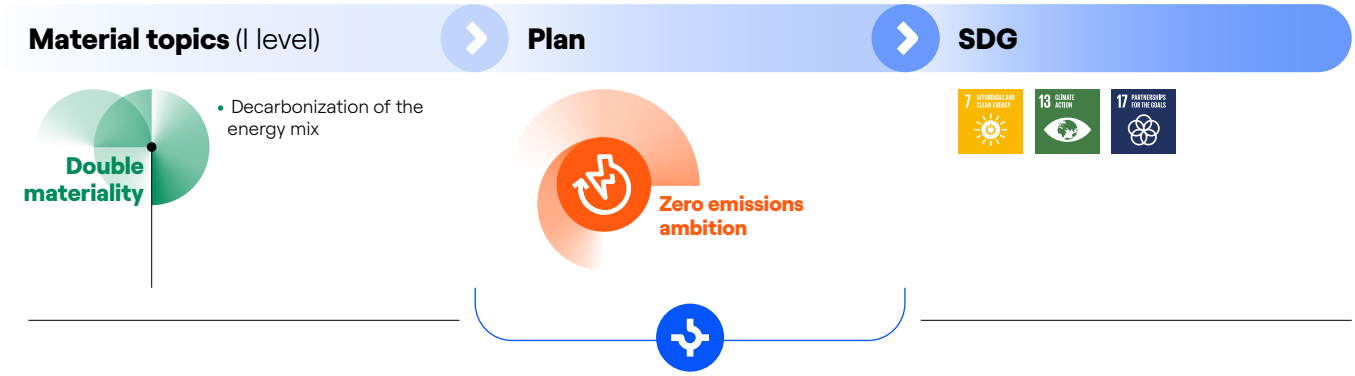
Innovation, circular economy, digitalization and sustainable finance

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.

Zero emissions ambition



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.

Climate change

SDG	Activities	2022 results	Progress	2023-2025 targets	Tag
13	Reduction in GHG Scope 1 emissions intensity relating to power generation[1]	• **229** gCO_{2eq}/kWh • **-40%** vs 2017[2]	●●○	• **130** gCO_{2eq}/kWh in 2025 • **-80%** in 2030 vs 2017	E
13	Reduction of GHG emissions intensity Scopes 1 and 3 relating to Integrated Power[1]	• **218** gCO_{2eq}/kWh • **-36%** vs 2017[3]	●●○	• **135** gCO_{2eq}/kWh in 2025 • **-78%** in 2030 vs 2017	E
13	Reduction of absolute GHG Scope 3 emissions relating to Gas Retail	• **22.9** $MtCO_{2eq}$ • **-10%** vs 2017	●●○	• **20.9** $MtCO_{2eq}$ in 2025 • **-55%** in 2030 vs 2017	E
13	Reduction of additional absolute GHG emissions (Scopes 1+2+3)[1]	**-24%** vs 2017[4]	N.A.	**-55%** in 2030 vs 2017	E
13 17	MBA-PhD training about resilience and energy transition in the countries where the Group operates	**204** people involved	●●○	**600** people involved in the period 2023-2025	E S G

(1) The values of the reduction percentages were calculated on an equal perimeter basis, and therefore take into account the 2017 baseline and the 2022 value, both restated to exclude GHG emissions from assets disposed in the 2017-2022 period, in accordance with SBTi.
(2) The restated value that excludes GHG emissions from assets in operation during 2022 and disposed before the end of the year is 217 gCO_{2eq}/kWh.
(3) The restated value that excludes GHG emissions from assets in operation during 2022 and disposed before the end of the year is 210 gCO_{2eq}/kWh.
(4) The restated value that excludes GHG emissions from assets in operation during 2022 and disposed before the end of the year is 17.5 $MtCO_{2eq}$.

I Industrial E Environmental S Social
G Governance T Technological

Goals: New; Redefined; Outdated

Progress: Not in line; In line; Achieved

N.A. = not applicable

Conventional technologies

SDG	Activities	2022 results	Progress	2023-2025 targets	Tag
7 13	Promoting the energy transition through conversion projects with the aim of finding new solutions and ways of using them to develop energy conversion, the circular economy, while also promoting innovation[5]	Porto Tolle: demolition underway Augusta: demolition completed Bari: demolition completed Livorno: Memorandum of Understanding signed between Enel Logistics and the local port authority, change of use underway Litoral: "Call for Projects" launched	●●○	**77** sites involved in repurposing projects,[5] including: **Porto Tolle**: construction of an open-air tourist village by a third party; demolition by the counterparty **Augusta**: construction of an innovative research and study centre in areas no longer used of the plant, dedicated to sustainable reclamation, solutions for mitigating the environmental impact of plants and infrastructures, and other areas relating to the energy sector and plant species **Livorno**: construction of a logistic-customs area in the site areas **Bari**: construction of an urban park with multifunctional areas (co-living, co-working, co-learning and green areas); demolition by the counterparty **Montalto**: launch of the Integrated Intervention Program in 2023 for a new integrated energy hub **As Pontes, Litoral, Compostilla, Alcudia**: continuous research to implement novel initiatives for new industrialization and energy development in the areas **Teruel**: Coal2RES internal reconversion and social development, training, new projects in the industrial, commercial and tourism sectors in the area	I E S T

(5) Third-party project initiatives could be developed where in-house redevelopment is not feasible.

Zero emissions ambition

Climate change represents the main global challenge of this century and Enel plays an active role in the fight against it, by leading the global energy transition towards zero emissions.

As one of the first signatories of the 2019 "**Business Ambition for 1.5 °C**" campaign promoted by United Nations, Enel Group has publicly declared its commitment to develop a **business model in line with the Paris Agreement (COP 21) objectives**, to limit the average global temperature increase to 1.5 °C.

In 2021, we have **brought forward our commitment to zero emissions by ten years, from 2050 to 2040**.

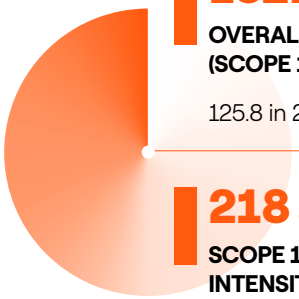
In 2022, we reached a historic new milestone by defining a **decarbonization roadmap** that covers **both direct and indirect emissions throughout the Group's value chain**. Specifically, four targets have been defined, certified by the Science-Based Targets initiative (SBTi) and in line with keeping global warming within 1.5 °C.

The roadmap currently envisages **reducing all direct and indirect greenhouse gas (GHG) emissions by around 99% by 2040 compared to 2017 throughout the value chain**, beyond the overall threshold set by SBTi (90%). The Group aims to achieve a 100% reduction in all emissions, with a view of overcoming exogenous factors in the short to medium term such as the development of new technological solutions in the supply chain at large-scale or the improvement of certain market conditions and policies.

Enel aims to promote electrification solutions powered by renewable sources, complete the phase-out of fossil fuels, accelerate renewable sources development, and digitize and upgrade networks. Specifically:

- **by 2025**, Enel will cover about 90% of its fixed-price sales with carbon-free electricity, bringing **renewables to about 75% of total production**.(1) In addition, progress towards digitalization of networks will increase the share of digitalized customers to around 80%;
- **by 2027**, Enel will complete the **phase-out of all its coal-fired power plants**;
- **by 2030, around 85% of the installed capacity will be renewable and 100% of network customers will be fully digitalized**;
- **by 2040** all installed capacity will be **100% renewable**, the Group will have phased-out both thermoelectric generation and retail gas activities and **100% of the electricity sold will be produced from renewable sources**.

(1) Includes generation from managed capacity of 25 TWh in 2025.



132.9 $MtCO_{2eq}$

OVERALL GROUP CARBON FOOTPRINT (SCOPE 1, 2 AND 3)

125.8 in 2021 **+5.6%**

229 gCO_{2eq}/kWh

SCOPE 1 GHG EMISSIONS INTENSITY RELATING TO POWER GENERATION

225 in 2021 **+1.8%**

218 gCO_{2eq}/kWh

SCOPE 1 AND 3 GHG EMISSIONS INTENSITY RELATING TO INTEGRATED POWER

203 in 2021 **+7.4%**

22.9 $MtCO_{2eq}$

ABSOLUTE SCOPE 3 GHG EMISSIONS RELATING TO GAS RETAIL

22.3 in 2021 **+2.9%**

63.3 %

NET RENEWABLE INSTALLED CAPACITY OUT OF TOTAL

57.5% in 2021 **+5.8%**

Enel will also lead its customers towards a decarbonized electrification of their consumption. Firstly, by increasing the share of renewable electricity consumption, Enel customers will reduce their indirect Scope 2 emissions; secondly, by expanding the portfolio of products and services to accelerate the electrification of other sectors, such as transport and construction, while promoting energy efficiency solutions, customers will also reduce their direct Scope 1 emissions.

Through its **business strategy**, the Group is committed to establish drivers, actions and investments required to complete the decarbonization and electrification roadmap, and identifying, assessing and managing the main **climate risks and business opportunities** emerging from the energy transition.

Particular attention is placed on the **climate change adaptation policies** to increase the resilience of the assets along the entire value chain, thereby limiting potentially negative impact and guaranteeing a safe and sustainable energy service in all the countries in which the Group operates.

Enel is committed to carry out its direct and indirect public advocacy action in line with the Paris Agreement and its objective of limiting global warming within 1.5 °C through the engagement of institutional stakeholders, trade associations, non-governmental organizations and academics. Enel promotes its point of view on public policies in the fight against climate change and on the pathways of decarbonization and electrification.

In addition, Enel is fully aware of the intrinsic link between **climate change and nature loss**. Rising temperatures, changes in precipitation patterns and extreme weather events impact significantly on ecosystems, forests and biodiversity. The decline of nature also affects the resilience of ecosystems to climate change, and the ability to capture carbon and generate benefits for society. Therefore, Enel's business model aims to synergistically address climate change and **promote the protection and conservation of nature**, as an essential factor in its corporate strategy and everyday operations.

Similarly, there is a strong link between **climate change and the social dimension**. An active role in the fight against climate change focusing on people requires of decarbonization strategies that stimulate social inclusion, and at the same time favors decent work, the pillars of which – according to the International Labour Organization – are full productive employment, the guarantee of rights at work, the expansion of social protection, and the development of social dialogue. As such, Enel fully supports the **principles of a just transition**, so that no one is left behind even in the short term, and recognizes the relevance for its business of the social impacts arising from its climate strategy, aimed at the progressive reduction of emissions in line with the Paris Agreement.

In addition, as a result of a solid corporate governance system that defines roles and responsibilities, **Enel's Board of Directors and Management oversee the main decisions regarding climate**.

In order to guarantee increased **transparency in its communications** and relationships with its stakeholders, the Group periodically reports on its related activities around climate change in line with the international standards of the Global Reporting Initiative (GRI) and the Sustainability Accounting Standards Board (SASB) and is publicly committed to adopting the recommendations of the Taskforce on Climate-related Financial Disclosures (TCFD) of the Financial Stability Board. The guidance from the "Enhancement and Standardization of Climate-Related Disclosures" of the SEC (Securities and Exchange Commission), the standards issued on the EFRAG website, and the ISSB's recently published exposure draft are also taken into account.

For details on the alignment of the structure of the chapter relating to the TCFD recommendations, please see the TCFD Content Index in the 2022 Sustainability Report.

Enel's roadmap to decarbonization and electrification

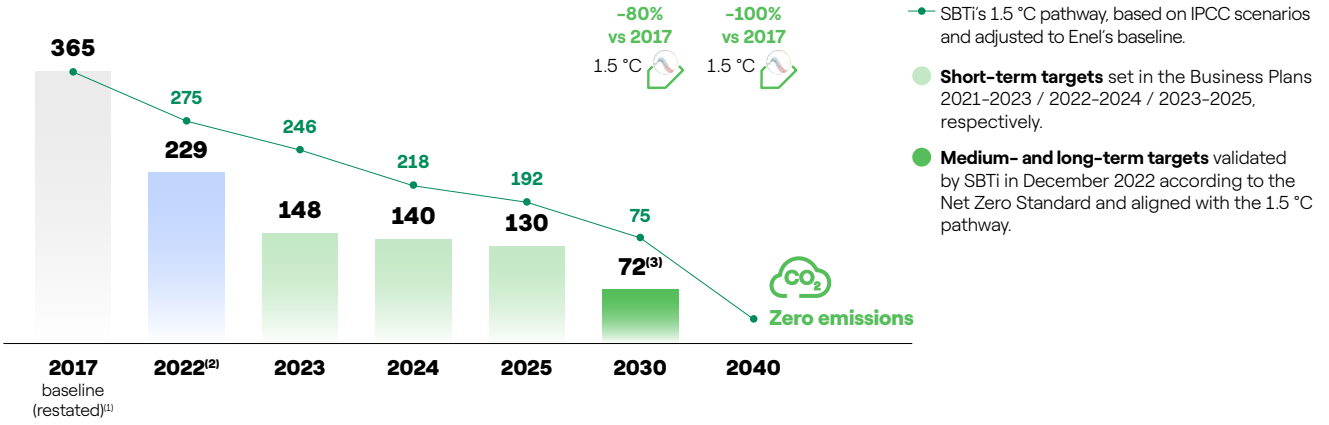
TCFD: Metrics & Targets

In 2022, Enel carried out a **full update of its decarbonization roadmap**. The process was validated by the Science-Based Targets initiative according to the criteria and recommendations related to short-term objectives and according to the SBTi Corporate Net Zero standard. This review included updating existing medium-term (2030) and long-term (2040) objectives, as well as setting new targets, all aligned to a 1.5 °C pathway, as defined by the SBTi, according to IPCC scenarios and other international benchmarks.

The main updates are:

- 2017 baseline was restated for all targets to exclude those direct and indirect GHG emissions from assets disposed in 2017-2022 period, including thermoelectric and renewable plants and energy distribution assets that were disposed or are no longer consolidated within Enel's financial perimeter, in accordance with the GHG Protocol and SBTi guidelines;
- target ambition on **Scope 1 GHG emissions intensity relating to power generation** has been improved, from 82 gCO_{2eq}/kWh to 72 gCO_{2eq}/kWh by 2030. This target covers all greenhouse gas emissions (including CO_2, CH_4 and N_2O) deriving from the power generation process with respect to total electricity and heat generated by the Group (excluding pumped storage generation to avoid possible double counting in the Scope 2 emissions calculation).

Scope 1 GHG emissions intensity relating to power generation (gCO_{2eq}/kWh)



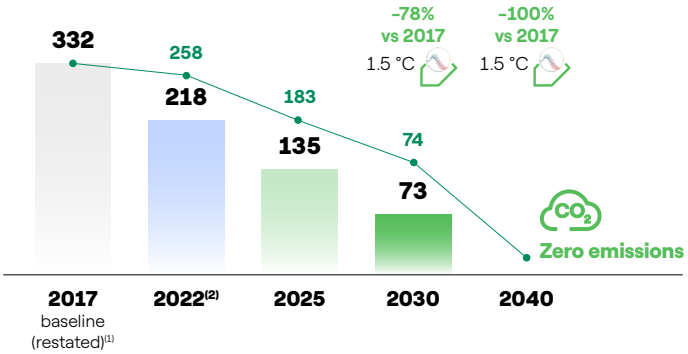
(1) The 2017 baseline has been restated from 416 gCO_{2eq}/kWh to 365 gCO_{2eq}/kWh to exclude GHG emissions from assets disposed in 2017-2022 period, in accordance with SBTi.

(2) 2022 value has not been restated and includes the GHG emissions of assets in operation during 2022 and disposed before the end of the year, according to the consolidation guidelines of the Sustainability Report. The figure, excluding GHG emissions from these assets, is 217 gCO_{2eq}/kWh, down 40% compared to the restated baseline.

(3) Target previously validated by SBTi in 2020 (1.5 °C pathway) of 82 gCO_{2eq}/kWh.

- target ambition on **Scope 1 and 3 GHG emissions intensity relating to Integrated Power** has been improved, from 83 gCO_{2eq}/kWh to 73 gCO_{2eq}/kWh by 2030. This target is calculated as the combination of direct Group GHG emissions (Scope 1 – including CO_2, CH_4 and N_2O) from electricity and heat generation and Group indirect GHG emissions (Scope 3) from power generation electricity purchased and sold to end customers (an element of the 3-Fuel and Energy Related Activities subcategory of the GHG protocol Scope 3 standard), divided by power generation (including heat and excluding pumped power storage) and purchase of electricity;

Scope 1 and 3 GHG emissions intensity relating to Integrated Power (gCO_{2eq}/kWh)

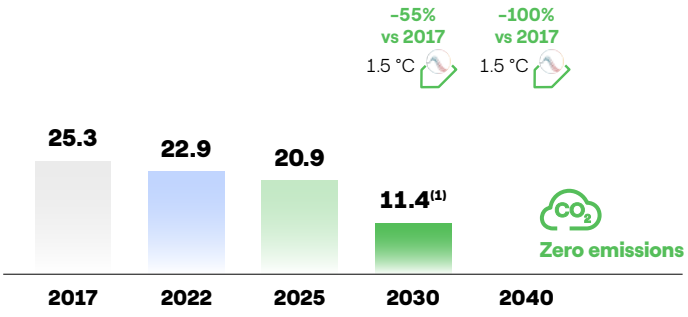


- SBTi's 1.5 °C pathway, based on IPCC scenarios and adjusted to Enel's baseline.
- **Short-term target** set in the Business Plan 2023-2025.
- **Medium- and long-term targets** validated by SBTi in December 2022 according to the Net Zero Standard and aligned with the 1.5 °C pathway.

(1) The 2017 baseline has been restated from 373 gCO_{2eq}/kWh to 332 gCO_{2eq}/kWh to exclude GHG emissions from assets disposed in 2017-2022 period, in accordance with SBTi.
(2) The 2022 value has not been restated and includes the GHG emissions from assets in operation during 2022 and disposed before the end of the year, according to the consolidation guidelines of the Sustainability Report. The figure, excluding GHG emissions by these assets, is 210 gCO_{2eq}/kWh, down 36% compared to the restated baseline.

- target ambition on **absolute Scope 3 GHG emissions relating to Gas Retail** has been significantly improved from 21.2 $MtCO_{2eq}$ to 11.4 $MtCO_{2eq}$ by 2030, to increase the level of alignment with temperature scenarios of the Paris Agreement, from a previous 2 °C pathway to one of 1.5 °C, to which the target is now aligned;

Absolute Scope 3 GHG emissions relating to Gas Retail ($MtCO_{2eq}$)

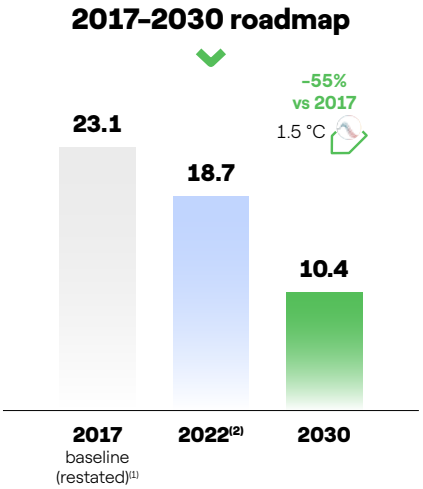


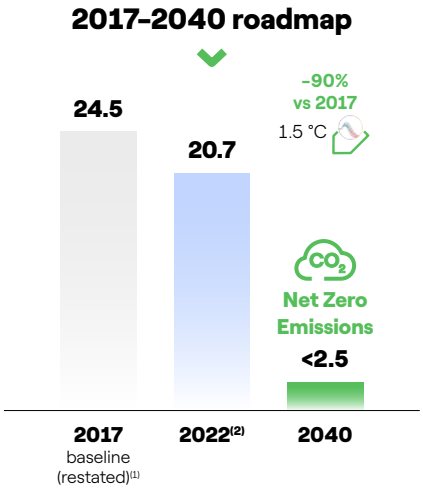
- **Short-term targets** set in the Business Plan 2023-2025.
- **Medium- and long-term targets** validated by SBTi in December 2022 according to the Net Zero Standard and aligned with the 1.5 °C pathway.

(1) Target previously validated by SBTi in 2019 (WB2C scenario) of 21.2 $MtCO_{2eq}$.

- new target has been defined for **additional absolute Scope 1, 2 and 3 emissions**. The target covers i) Scope 1 GHG emissions from vehicles fleet and buildings, and losses of SF_6 in distribution assets; ii) all Scope 2 emissions; iii) Scope 3 emissions from the supply chain and all other activities related to fuel purchase and transportation. This objective provides for different levels of coverage of GHG emissions deriving from the supply chain for the 2030 and 2040 targets, allowed by SBTi methodology, which translate into two decarbonization curves:
  - 2017-2030 roadmap covers specific supply chain categories that accounted for 40% of supplier emissions in 2017;
  - 2017-2040 roadmap covers all supply categories included in the 2017-2030 roadmap and additional ones, which account for 54% of supplier emissions in 2017.

Additional Scope 1-2-3 emissions ($MtCO_{2eq}$)





Medium- and long-term targets validated by SBTi in December 2022 according to the Net Zero Standard and aligned with the 1.5 °C pathway.

(1) 2017 baseline has been restated from 25.0 $MtCO_{2eq}$ to 23.1 $MtCO_{2eq}$ for 2017-2030 roadmap and from 26.5 $MtCO_{2eq}$ to 24.5 $MtCO_{2eq}$ for 2017-2040 roadmap to exclude GHG emissions from assets disposed in 2017-2022 period in accordance with SBTi.

(2) 2022 figure has not been restated and includes the GHG emissions of assets in operation during 2022 and disposed before the end of the year, following the consolidation guidelines of the Sustainability Report. The figure, excluding GHG emissions by these assets, is 17.5 $MtCO_{2eq}$ for the 2017-2030 roadmap, down 24% compared to the restated baseline and 19.5 $MtCO_{2eq}$ for the 2017-2040 roadmap, down 20% from the restated baseline.

- 2017-2030 roadmap covers specific supply chain categories that accounted for 40% of supplier's emissions in 2017.
- 2017-2040 roadmap covers all supply chain categories included in the 2017-2030 roadmap and additional ones, which accounted for 54% of supplier's emissions in 2017.

The first three targets envisage a 100% reduction in emissions generated by 2040, as the Group will produce and sell 100% of energy from renewable sources by then and will no longer maintain a presence in the retail gas market. The fourth objective currently envisages a 90% reduction by 2040 from 2017, with a residual volume of less than 2.5 $MtCO_{2eq}$, which will be neutralized through carbon removal in the event that the current external factors (linked to the supply chain, the market and the regulatory frameworks) that prevent Enel from mitigating them will also be present after 2040.

The four targets cover the 93.3% of the total direct and indirect GHG emissions reported by Enel in 2022. Specifically:

- **98.6% of Scope 1 GHG emissions**. Minor sources of GHG emissions were excluded as they were not directly related to the combustion process for electricity generation or the power distribution activity (such as GHG emissions from ancillary services in renewable power plants and distribution sites, CH_4 leakage in gas-fired plants, and SF_6 leakage in thermal and renewable plants) or of biogenic origin (such as CH_4 emissions from hydroelectric reservoirs);
- **100% of Scope 2 emissions**, including all indirect emissions from electricity consumption and technical grid losses;
- **87% of Scope 3 emissions** for the target set for 2030, compared to 90% for the target set for 2040. Specific categories of the supply chain have been excluded from the scope of the targets.

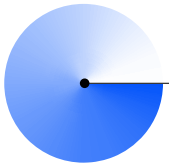
GHG targets	Core business activity	GHG sources covered (GHG Protocol)[1]	Timing	GHG targets	Climatic scenario	Main drivers and actions
Intensity of GHG Scope 1 emissions relating to power generation	Electricity generation	**98.2%** **of** Scope 1 GHG **emissions**[2]	●○○›	130 gCO_{2eq}/kWh	1.5 °C[3]	• Gradual phase-out of coal-fired capacity over the period 2023-2025 (percentage weight of coal-fired capacity in consolidated capacity from about 7% in 2022 to less than 0.5% in 2025). • Invest 15 billion euros to accelerate the development of renewable energy by installing 17 GW of new renewable capacity (including about 13 GW at consolidated level) and 4 GW of BESS in the period 2023-2025, reaching 75 GW of renewable capacity (including 4 GW of BESS) by 2025.
			●●○›	72 gCO_{2eq}/kWh (-80% compared to baseline year 2017)	1.5 °C (SBTi certified)	• Continue the process of decarbonization of electricity generation, thanks to a Group-wide investment plan that will be confirmed at the annual levels of the 2023-2025 plan, reaching a managed capacity of more than 130 GW by 2030, thus bringing the Group's generation facilities to consist of about 85% renewable plants. • Exit the coal-fired generation business on a global scale by 2027.
			●●●›	0 gCO_{2eq}/kWh (-100% compared to baseline year 2017) **Zero emissions**	1.5 °C (SBTi certified)	• Exit the thermal electricity generation business, achieving a 100% renewable energy mix. • No use of carbon removal technologies
Intensity of GHG Scope 1 and 3 emissions relating to Integrated Power	Sale of electricity	• **98.2%** **of** Scope 1 GHG **emissions** • **73.4%** **of** Scope 3 GHG **emissions** - category 3 (fuel and energy related activities)	●○○›	135 gCO_{2eq}/kWh	1.5 °C[3]	• Increase the share of renewable energy sold to customers by increasing the Group's renewable generation. • Increase from about 70% in 2022 to about 90% in 2025 the share of fixed-price power sales covered by carbon-free sources in core countries, while simultaneously increasing the volumes of electricity sold at fixed prices from about 185 TWh in 2022 to about 200 TWh in 2025.
			●●○›	73 gCO_{2eq}/kWh (-78% compared to baseline year 2017)	1.5 °C (SBTi certified)	• Increase the share of renewable energy sold to customers by increasing the Group's renewable energy generation, reaching a managed capacity of more than 130 GW by 2030, thus bringing the Group's generation facilities to consist of about 85% renewable plants. • Continue the strategy of balancing supply and demand and increasing the share of electricity sold at fixed price covered by carbon-free power generation.
			●●●›	0 gCO_{2eq}/kWh (-100% compared to baseline year 2017) **Zero emissions**	1.5 °C (SBTi certified)	• Achieve 100% of energy sales from renewable sources by 2040. • No use of carbon removal technologies

Timing: ●○○› Short term (2025) ●●○› Medium-term (2030) ●●●› Long-term (2040)

GHG targets	Core business activity	GHG sources covered (GHG Protocol)[1]	Timing	GHG targets	Climatic scenario	Main drivers and actions
Absolute Scope 3 GHG emissions relating to gas sales in the end market.	Gas sales to the end customer	**100%** **of** Scope 3 GHG **emissions** – category 11 (use of sold products)	●○○›	20.9 $MtCO_{2eq}$	n.a.[4]	• Promote the switch of customers from gas to electricity (especially residential customers) by pushing more efficient electrical technologies (e.g. heat pumps for home heating or induction hobs in kitchens), increasing the electrification rate of our customers in Italy and Spain from 17% in 2022 to over 20% in 2025. • Promote electrification-enabling services to end customers: increasing behind-the-meter storage capacity from about 75 MW in 2022 to about 352 MW in 2025, increasing the capacity of photovoltaic panels installed by end customers from about 100 MW in 2022 to about 300 MW in 2025, and increasing demand response capacity from about 8.5 GW in 2022 to about 12.4 GW in 2025. • Reduce the volumes of gas sold to end customers from about 10.2 bcm in 2022 to about 4.3 bcm in 2025. • Optimize the gas portfolio of customers (especially industrial customers) by reducing the number of customers in the retail gas business from about 6.5 million in 2022 to about 4.4 million in 2025.
			●●○›	11.4 $MtCO_{2eq}$ (-55% compared to baseline year 2017)	1.5 °C (SBTi certified)	• Promote the switch of customers from gas to electricity (especially residential customers) through the promotion of more efficient electrical technologies (e.g. heat pumps for home heating or induction hobs in kitchens), increasing the electrification rate of our customers in Italy and Spain from 17% in 2022 to over 30% in 2030. • Continue the strategic actions envisaged for the short term, by continuing to promote services to end customers that enable the electrification of consumption and achieving a demand response capacity by 2030 of more than 20 GW. • Optimize the gas portfolio of customers (especially industrial customers) by continuing to reduce the volume of gas sold to about 3 bcm in 2030.
			●●●›	0 $MtCO_{2eq}$ (-100% compared to baseline year 2017) **Zero emissions**	1.5 °C (SBTi certified)	• Achieve 100% sales of energy covered by renewable sources by 2040. • Exit from the business of gas sales to retail by 2040. • No use of carbon removal technologies.

Timing: ●○○› Short term (2025) ●●○› Medium-term (2030) ●●●› Long-term (2040)

GHG targets	Core business activity	GHG sources covered (GHG Protocol)[1]	Timing	GHG targets	Climatic scenario	Main drivers and actions
Additional absolute Scope 1-2-3 emissions	• Electricity distribution (Scopes 1 and 2) • Fleet management of vehicles, buildings and other assets (Scopes 1 and 2) • Supply chain management (Scope 3) • Purchase of fuels (Scope 3)	• **0.4%** **of** Scope 1 GHG **emissions** • **100%** **of** Scope 2 GHG **emissions** • **28.6%** **of** Scope 3 GHG **emissions** - category 1 (purchase of goods and services) for the 2030 target and 43.0% for the 2040 target[5] • **26.6%** **of** Scope 3 GHG **emissions** - category 3 (fuel and energy related activities)	●●○›	10.4 $MtCO_{2eq}$ (-55% compared to the baseline year 2017)	1.5 °C (SBTi certified)	• Invest a total of 15 billion euros in distribution networks over the period 2023-2025, of which 11% to increase digitalization and 47% to improve the resilience and quality of networks, thus helping to reduce network losses and related emissions. Replace existing components of the distribution network infrastructure with SF_6-free solutions. • Electrify the fleet and buildings by 2030. • Implement a circular procurement approach and increase the number of contracts that include the measurement of the carbon footprint of products and services purchased by Enel by incentivizing their reduction in a decarbonization pathway shared with our suppliers. Strengthen the dialogue with manufacturers or raw materials and other utilities to define effective and long-term common decarbonization strategies. • Phase out coal-fired generation by 2027, mitigating all GHG emissions related to coal supply.
			●●●›	<2.5 $MtCO_{2eq}$ (-90% compared to the baseline year 2017) **Net zero emissions**	1.5 °C (SBTi certified)	• Promote the digitalization of the distribution network and replace existing network infrastructure components with SF_6-free solutions. • Implement a circular procurement approach and increase the number of contracts that include the measurement of the carbon footprint of products and services purchased by Enel by incentivizing their reduction in a decarbonization pathway shared with our suppliers. Strengthen the dialogue with manufacturers or raw materials and other utilities to define effective and long-term common decarbonization strategies. • Zero emissions from gas extraction activities by exiting the business of both electricity generation from gas and gas sales to end customers.



Total coverage of Scope 1-2-3 emissions in 2022

- 98.6% of Scope 1 GHG emissions (2025, 2030, 2040 target)
- 100% of Scope 2 GHG emissions (2030, 2040 target)
- 87% (2030 target) and 90% (2040 target) of Scope 3 GHG emissions[5]

(1) Percentages based on total GHG emissions in 2022.
(2) Marginal Scope 1 GHG emissions not directly related to the combustion process of fossil fuels for power generation in thermal power plants were excluded, representing 1.4% of total Scope 1 emissions in 2022. In any case, the GHG emissions covered by all of the above targets together represent 98.7% of total Scope 1 and 2 emissions in 2022 and are therefore above the 95% threshold required by SBTi.
(3) The target meets the 1.5 °C path set by SBTi for the electricity service sector (sectoral decarbonization approach, SDA), although it could not be officially validated because SBTi does not certify targets with a timeframe of less than five years from the date of submission.
(4) The target could not be officially validated because SBTi does not certify targets with a timeframe of less than five years from the date of submission. Furthermore, SBTi has not defined a sectoral decarbonization approach for these types of emissions, so the level of ambition cannot be verified.
(5) Two different percentage limits to the supply chain GHG Scope 3 target have been defined, as allowed by the SBTi methodology, which requires at least 67% of Scope 3 emissions to be covered for the 2030 target, and at least 90% for the 2040 target.

Timing: ●○○› Short term (2025) ●●○› Medium-term (2030) ●●●› Long-term (2040)

Enel's impact on climate change

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Enel's impact on climate change in 2022

Positive impacts

CO_2 free generation[1]		Digitalization of the grid		Electrification of the energy demand and promotion of energy efficiency	
81.6 million t_{eq} of avoided CO_2	• Avoided CO_2 emissions from electricity generation • Contribution to CO_2 emission reduction in other sectors[2] through a zero-emission energy mix	45.8 million end users with active smart meters	• By providing data in quasi real time, smart meters permit an efficient management of the energy supply and demand, promoting informed and sustainable consumption	22.6 thousand publicly owned charging points for electric mobility	• Contribution to CO_2 emission reduction in other sectors through the electrification of consumption, including transport by promoting electric mobility
99 MW	• Increase in storage capacity[3]	2.6 number of service interruptions per client (SAIFI)[4]	• A reliable and resilient grid helps reduce the CO_2 emissions associated with grid losses	3 million smart public lighting points	• Energy efficiency solutions for reducing consumption (residential, city and industry)

Negative impacts

Value chain	Generation	Networks		Retail	
52.1 million t_{eq} CO_2	• Direct greenhouse gas emissions for electricity generation (Scope 1)[5]	3.3 million t_{eq} CO_2	• Indirect greenhouse gas emissions associated with technical losses from the grid (Scope 2)[6]	28.4 million t_{eq} CO_2	• Indirect greenhouse gas emissions associated with the purchase of electricity sold to the end customer (Scope 3)
10.3 million t_{eq} CO_2	• Indirect greenhouse gas emissions from fuel extraction and transportation (Scope 3)			22.9 million t_{eq} CO_2	• Indirect greenhouse gas emissions associated with the use of natural gas sold in the retail market (Scope 3)

Thermal production | Technical losses from the grid | Sales of retail electricity and gas

(1) Includes the generation of renewable and nuclear energy.
(2) The GHG Protocol requires the consumption of electricity to be considered when calculating the Company's carbon footprint as indirect emissions (Scope 2).
(3) Includes the contribution of the Global Power Generation Business Line.
(4) SAIFI, System Average Interruption Frequency Index.
(5) Other Scope 1 emissions were indicated in the paragraph "Our carbon footprint".
(6) Other Scope 2 emissions were indicated in the paragraph "Our carbon footprint".

Electricity is essential to guarantee the sustainable progress of modern societies and represents a key factor in reaching the goals of the United Nations 2030 Agenda, in particular SDG 7, to guarantee everyone accessible, reliable, sustainable and modern energy, and SDG 13, regarding climate action.

Electricity generation has always played a key role in climate change, as the use of fossil fuels is a considerable source of greenhouse gas emissions. Technological development, in particular in the area of renewable energies, has completely transformed this scenario by making electricity one of the main solutions for reducing the carbon footprint worldwide. Enel is aware of these impacts and implements specific actions to minimize them, promoting the decarbonization of the energy system and the electrification of the energy demand. As a result, this reduces the greenhouse gas emissions along the entire value chain.

Enel's **power generation from fossil fuels** (mainly gas and coal) traditionally represents the main source of greenhouse gas emissions. In particular, in 2022 the direct emissions (Scope 1) relating to power generation from fossil fuels were about 52.1 mil t_{eq} CO_2, whereas indirect emissions (Scope 3) relating to the extraction and transport of fuels were 10.3 mil t_{eq} of CO_2. Enel is reducing this impact by accelerating the phase out of coal-fired plants, with a reduction of capacity in 2022 of around 2.5 GW compared to 2021. In parallel, the Group is increasing the development of renewable capacity that, together with the contribution of nuclear generation, has avoided 81.6 mil t_{eq} of CO_2 emissions. Furthermore, Enel is actively committed to the development of electricity storage systems that support the integration of renewable capacity, with a total installed capacity of 316 MW in 2022. Decarbonization of the energy mix also has a positive impact on the reduction of customers' indirect greenhouse gas emissions (Scope 2) associated with the acquisition of electricity to cover their energy demand.

Electricity grids' management involves indirect greenhouse gas emissions (Scope 2) associated with technical energy losses on the grid of 3.3 mil t_{eq} of CO_2 in 2022 (according to the "location based" calculation methodology). Enel is actively investing in the digitalization and automation of the electricity grid to reduce these losses and increase reliability, while promoting the diffusion of renewables in the energy system.

Concerning the **end customer**, the use of the products sold by Enel's customers generates GHG emissions that are accounted for as indirect (Scope 3). In particular, the emissions connected to the purchase of electricity to be sold to customers equaled approximately 28.4 mil t_{eq} of CO_2, whereas those related to the use of gas sold equaled 22.9 mil t_{eq} of CO_2. Enel regularly monitors these emissions and adopts measures aimed at minimizing them. Furthermore, it offers its customers technical solutions to reduce carbon emissions related to their energy consumption in a wide range of sectors, including transport, property management as well as industrial processes and services. For example, with Enel X the Group is promoting the deployment of owned public charging infrastructure for electrical vehicles (22,600 charging points installed in 2022), the development of energy efficiency solutions, distributed generation, consultancy services, smart public lighting and circular cities.

Emissions related to the **activities of the Group's suppliers** amounted to 14.2 mil t_{eq} of CO_2 in 2022. To reduce this impact, Enel adopts a circular procurement approach and includes assessments of the carbon footprint of the products and services involved in the purchasing processes and encourages their reduction.

Advocacy about climate change policies

Within the framework of its commitment to climate change, Enel is firmly committed to promoting and defining:

- **ambitious climate and decarbonization targets** consistent with the objectives set by the Paris Agreement;
- **effective and efficient implementation mechanisms** capable of exploiting market dynamics, by fully supporting the role of carbon pricing;
- **constant dialog on climate issues within multi-stakeholder initiatives**, actively contributing to groups and coalitions such as the Just Transition Think Lab and Caring for Climate under the UN Global Compact, the SOS 1.5 and Policy Advocacy and Member Mobilization (PAMM) projects of the WBCSD (World Business Council for Sustainable Development), and the World Bank's Carbon Pricing Leadership Coalition (CPLC);
- **private sector leadership on decarbonization** through its continued participation in initiatives such as the CEO Alliance, WEF CEO Climate Leaders Alliance, IETA (International Emissions Trading Association), FMC (First Movers Coalition), and regional and national trade associations.

Enel is committed to ensuring that its direct advocacy activities are aligned with the objectives of the Paris Agreement, involving institutional stakeholders, trade associations, non-governmental organizations and academia, in order to promote the Group's vision on climate and policies to eliminate greenhouse gas emissions. Stakeholder engagement contributes to the evolution of the regulatory framework towards ambitious climate goals and promotes an economy in which carbon pricing plays a fundamental role in orientating long-term investments.

In particular, Enel interacts directly with policy makers, contributes to the positioning of trade associations, and engages with a broader set of stakeholders to build consensus and support for specific policy proposals.

Enel supports the integration of carbon pricing into the decision-making process in all countries where it operates. In doing so, it underlines the importance of well-functioning mechanisms for carbon taxation and emissions trading. These must be able to provide short- and medium-term predictability to support market efficiency, as well as strong long-term price signals to support investment and innovation.

The worldwide coordination of Enel's global public policy positioning on climate is ensured by the Energy and Climate Policies unit. This unit is responsible for developing global scenarios and position papers on climate policies with the support of the Country and Global Business Lines. Its objective is to guide Enel's national and local advocacy activities, thanks to a continuous dialog with institutions and the widest possible range of stakeholders active in the climate debate. In this sense, Enel is also committed to ensure continuous and full alignment with the objectives of the Paris Agreement within the associations of which it is a member.

During 2022, the Group represented its interests and promoted its position vis-à-vis the European institutions (Commission, Parliament, Council) with the aim of orientating legislative proposals and decisions that could have affected the EU's Climate and Energy Policy Framework, and the Group's activities. In carrying out these activities, Enel is committed to acting in a transparent and responsible manner. In this sense, it is listed on the European Transparency Register,[2] the specific activities of which are linked to the main EU legislative and/or policy proposals (including the European Green Deal, Fit for 55, the REPowerEU plan, ETS reform, Air Quality Directives, Sustainable Finance, State Aid and Competition, Hydrogen). The dedicated website contains a public list of meetings Enel has held with the EU Commissioners, members of their Cabinets and EC Directors-General between December 2014 and January 2023. Specifically, for 2022, issues discussed included: the European Green Deal, Energy Taxation Directive (ETD), Carbon Border Adjustment Mechanism (CBAM), the Renewable Energy Directive, and the ETS Directive. In addition, Enel's positions and responses to EU consultations (such as the Critical Raw Materials Act) are made public, together with a list of the main professional associations and think-tanks in which Enel is active.

In all countries, Enel's pursues its advocacy efforts through specific activities and broader stakeholder engagement on decarbonization and energy transition issues. The approach is similar to that adopted at global level. The objectives of the Enel Group's advocacy policy include promoting greater climate ambition, carbon pricing, accelerating the deployment of renewable technologies, developing and upgrading infrastructure through smart grid technologies to support the energy transition, and electrification as a means for decarbonizing energy end-uses. In this context, through the "Energy Transition Roadmap" engagement

(2) https://ec.europa.eu/transparencyregister/public/consultation/displaylobbyist.do?id=6256831207-27&locale=en#en, number 6256831207-27. By registering, Enel signed the Transparency Register Code of Conduct, and also declared that it is bound by its own Code of Ethics.

platforms, Enel engages with a wide range of stakeholders on the definition and implementation of the actions needed to pursue the Paris Agreement goals. These platforms take decarbonization by 2050 as a starting point, then proceed to identify the technology mix needed to reach this and the medium-term goal for 2030, and to develop specific policy recommendations aimed at achieving this transformation.

The Group's positioning on the main climate policies

During 2022, several regulatory and legislative events took place, both specific to the climate and concerning energy and environmental issues related to it.
The number of dossiers on which Enel focuses its advocacy increases annually and, in particular, our main positions are as follows:

Globally:

- **as part of the United Nations Framework Convention on Climate Change (UNFCCC), Enel has been active in promoting greater ambition in the implementation of the Transparency Governance Framework**, in the full mobilization of carbon finance envisaged by the Paris Agreement, together with rapid development of international cooperation envisaged by Article 6 of the same Agreement. In this sense, Enel also played an active role during the various preparatory events for COP 27 in Sharm el-Sheikh. In particular, Enel has asked: to efficiently accelerate the energy transition by guiding the world's economies on the path to Net-Zero, as recalled by the latest IPCC Report; to prepare the stocktaking planned for COP 28; to catch up in mobilizing finance to support mitigation and adaptation in developing countries; finalizing the implementing provisions of Article 6 on cooperation in terms of climate change;

- **Enel promotes greater climate ambition in line with the Paris Agreement**, in a just transition framework. Enel's advocacy in this area is implemented through ad hoc engagement on specific legislative proposals (e.g. the European Climate Law), but also through broader stakeholder engagement at national level through Enel's Energy Transition Roadmap platform (see above). Through such platforms, Enel promotes NDCs (Nationally Determined Contributions) that fully reflect the highest possible climate ambition and are fully in line with the requirements of the Paris Agreement;

- **Enel has strongly promoted carbon pricing in the form of both carbon tax and emissions trading**. In particular, Enel believes that the adoption of these mechanisms based on Cap and Trade systems should be preferred in industrialized economies and industrial sectors where operators can effectively manage and internalize the price signals recorded on the market in their decision-making processes. Conversely, carbon-pricing mechanisms should tend to take the form of carbon taxes in countries with weaker institutions and in sectors characterized by distributed emission sources, and where non-economic barriers are significant. The Enel Group strongly supports carbon pricing as a means to decarbonize economic systems efficiently and effectively around the world. Enel's positions on the adoption of carbon pricing are conveyed both directly and through participation in the activities of organizations such as IETA, CPLC, Eurelectric and WBCSD. In 2022, specific activities were dedicated and aimed at analyzing and promoting carbon pricing, at global, regional (EU and Latin America) and national (EU member states, Brazil, Argentina, Chile, Guatemala, Panama, Costa Rica, Colombia and Peru) levels.

At European level:

- The **European Green Deal**, together with recent acceleration as a result of the **REPowerEU** plan to reduce Europe's energy dependence, represents for Enel a unique opportunity to accelerate the EU's path to a fully decarbonized and sustainable economy, especially when aligned with the mobilization of significant resources to ensure a rapid recovery from the ongoing crises. For Enel, the EU's climate and environmental goals require a new industrial strategy to reach climate neutrality, and an action plan for the circular economy, pursuing the decarbonization of each sector. The energy sector must aim to be fully decarbonized ahead of other sectors, as such ensuring decarbonization through direct and indirect electrification. For example, the study "Powering our buildings: how policies can support energy efficiency through building electrification", developed together with FIRE (Italian Federation for the Rational Use of Energy) and IEECP (Institute for European Energy and Climate Policy), addresses energy improvement and decarbonization of the building sector;

- Enel has supported EU proposals for **reform of the Emissions Trading System (ETS)**, which must be strengthened to pursue the EU's higher climate ambition and supported by a Carbon Border Adjustment Mechanism. The revision of the ETS Directive is in line with Enel's positioning. The overall ambition of the scheme has been reinforced with a target of reducing emissions by 62% by 2030 compared to 2005 levels. The EU ETS has been extended to new activities in hydrogen production and maritime transport. A separate ETS for transport and for the heating of buildings has been launched with differ-

ent clauses to ensure their sustainability with a view to a just transition. The functioning of the market has been improved through a revision of the Market Stability Reserve (MSR), aimed at increasing price stability and balancing any surplus allowances on the ETS market. Finally, the revision of the EU ETS has taken place alongside the adoption of the Carbon Border Adjustment Mechanism to provide greater climate ambition while reducing the risks of carbon leakage;

- Enel has supported a revision of the **Effort Sharing** regulation that fully exploits the decarbonization potential of energy end-uses in the EU's increased climate ambition. The review aimed to update the Effort Sharing Regulation (ESR) targets of individual member States in an upwards direction, in line with the higher ambition of 2030. The ambition also needed to be aligned with 2050 climate neutrality, to avoid the technological lock-in of emitting technologies and infrastructure. However, the impact on prices and energy bills must be carefully managed when adopting the recently revised regulation;

- Enel has welcomed the publication of the **hydrogen and gas market decarbonization package** by the European Commission. The package also includes the proposed regulation on reducing methane emissions throughout the value chain in the energy sector and introduces new requirements for measuring, reporting and verifying emissions, as well as emission abatement measures. In addition, the regulation also proposes rules to increase transparency on methane emissions associated with fossil fuel imports;

- Enel supports the European Commission's proposal on an upward revision of the EU's 2030 energy efficiency target to at least 36% for final energy consumption and at least 39% for primary energy consumption to achieve the ambition of reducing greenhouse gas emissions by 2030. Significant energy efficiency improvements are needed to achieve the Net-Zero emissions target by 2050. As such, the proposed revision of the Directive, as part of the "Delivering on the European Green Deal" package, raises the level of ambition of the EU's energy efficiency target and makes it binding;

- Enel welcomes the Commission's initiative to review the Renewable Energy Directive and increase its ambitiousness. It believes that the main contributions to efficient decarbonization of the energy sector, as well as buildings, heating and cooling, transportation and industry, will come from further end-use electrification (direct and indirect electrification for sectors that are difficult to abate emissions by means of green hydrogen). In this regard, low carbon fuels should be excluded from the scope of this Directive. Enel believes that the EU regulatory framework should provide long-term predictability for investors, as well as simplified and standardized authorization procedures. Finally, Enel supports a technology-neutral approach that at the same time creates the necessary conditions for the penetration of fully sustainable technologies;

- as part of the European Commission's hydrogen strategy, the Enel Group actively promotes **green hydrogen** (generated by electrolysis powered by 100% renewable energy). Enel believes that this is the only truly sustainable generation pathway for hydrogen, powered by renewable sources with zero greenhouse gas emissions. Hydrogen is best used as a complement to electrification, not as a competitor. It has an efficient role in decarbonizing those parts of the economy that cannot be electrified easily or economically, for example, hard-to-abate sectors such as heavy industry, aviation and shipping. In addition, Enel participated in 2022, together with many other multinationals, in two different working groups within the "Energy Pathway" project promoted by WBCSD, with the aim of participating in the discussion on how to stimulate the development of projects and, at the same time, the hydrogen market;

- as part of its **smart and sustainable mobility strategy**, the Enel Group is actively promoting e-mobility as a key factor in reducing road transport emissions and contributing to the achievement of EU energy efficiency targets. Since 2011, the EU has been involved in the process of updating its transport policy framework to reduce emissions in this sector, particularly road transport. Mobility is a critical aspect of social inclusion and a determining factor in human well-being, especially for disadvantaged groups. Recognized as an essential service in the European pillar of social rights, transport meets a fundamental need in enabling citizens to integrate into society and the labor market. By far the most serious challenge facing the transport sector is to reduce its emissions significantly and become more sustainable. The European Green Deal calls for a 90% reduction in GHG emissions from transport so that the EU can become a climate neutral economy by 2050, including working towards a zero pollution ambition. In addition, in 2021 the European Commission unveiled the "EU Urban Mobility Framework", complementing the proposed revised guidelines for the Trans-European Network. The new EU Urban Mobility Framework outlines a common list of measures and initiatives for with which EU cities can address the challenge of making their mobility more sustainable. Finally, in 2022 Enel participated in the

Mobility Decarbonization working group promoted by WBCSD, with the aim of encouraging the decarbonization of road transport, facilitating the development of new technologies for zero-emission vehicles and the creation of new charging infrastructure;

- Enel fully supports the **European building renovation strategy** and actively participates in discussions on the proposed review of the Energy Performance of Buildings Directive. The building sector is one of the most lagging industries as regards decarbonization due to criticalities in the value chain, in building efficiency, and in choice of energy source. Enel believes it can contribute substantially to the decarbonization of the building sector by installing efficient electrical technologies such as heat pumps, charging infrastructure for mobility and solar panels on roofs, improving building efficiency through electrification and digitalization, making buildings dynamic elements of the energy system through storage, remodeling of demand, and electric vehicle charging;

- Enel has involved various stakeholders in the European Commission's **New Circular Economy Action Plan**, stressing the importance of ensuring the circularity of the main supply chains, particularly in relation to electric vehicles, batteries and renewable energy technologies. Furthermore, Enel's advocacy has highlighted the need to develop appropriate circular economy metrics and to focus on the high potential of urban environments through the implementation of a clear vision of circular smart cities;

- within the framework of the Zero Pollution dossier and other environmental dossiers, the Enel Group is actively promoting the **maximization of synergies between decarbonization and other environmental policies**. In this context, synergies of climate and air quality policies are perhaps the most critical, and electricity technologies can play a key role in combating climate change, improving local air quality and increasing the circularity of the EU's economic system. The revision of the Air Quality Directive, proposed by the Commission in 2022, has proved crucial to strengthen the role that clean technologies can play in improving air quality for European citizens. Soil management is vital for a circular economy that aims to develop sustainable models capable of encouraging the coexistence of different activities and creating synergies and mutual benefits, such as agrivoltaics. The new soil strategy published in November 2022 is a step in the right direction. However, its scope should also be extended to the redevelopment of brownfield sites and the reuse of brownfields to avoid further land acquisition and soil pollution.

In the USA and Canada, the main dossiers on which the Enel Group has taken action with advocacy actions include:

- the US Inflation Reduction Act (IRA), aimed at incentivizing the deployment and generation of clean energy technologies. The law is expected to provide new incentives for clean energy and facilitate a 40% reduction in the US economy's greenhouse gas emissions by 2030. Enel has supported the IRA, presenting its assessments to Congress and working with trade associations to inform and model the design elements of policies within the law;

- the US Uyghur Forced Labor Prevention Act (UFLPA), the impact of which has been particularly significant on imports from the Xinjiang Uyghur Autonomous Region in China. In June 2022, the provisions for major solar energy importers came into force. Enel has supported the sector's action to develop supply chain traceability programs and, with trade associations, has opposed any presence of forced labor in supply chains, in line with the public commitment made in this regard through the human rights policy;

- in California, the mobilization of financing for distributed generation and resilience: funds have been allocated to support resources (generation and storage) distributed at low/zero emissions, but also for demand management on electricity grids. In addition, a commitment has been made to accelerate the electrification of transport. Enel has supported the allocation of these funds and met and provided its assessments to the legislature, working with trade associations;

- the Massachusetts Climate Bill enacted in August 2022, which aims to promote a 50% reduction in emissions compared to 1990 by 2030. The law includes a target of developing energy storage of 1 GWh by 2025 and requires all new sales of passenger vehicles to be zero-emission by 2035. There are also discounts for the sale of electric vehicles and incremental incentives for low-income buyers. Enel has supported the legislation and has met and provided targeted evaluations to the legislature, working with trade associations;

- the increase in the carbon price in Alberta, with a carbon price trajectory to 2026 aligned with the forecasts of the Canadian Federal Government. Starting January 1, 2023, the federal carbon price will increase from CAD 50 to 65 per ton of GHG emissions, with subsequent annual increases bringing the tax to CAD 170 per ton by 2030. Enel has supported the pricing trajectory and has met directly with government officials and representatives, working with trade associations.

In Latin America, the main dossiers on which the Enel Group has taken action with advocacy actions include:

- in Peru, the Supreme Decree 003-2022-MINAM, which declares the climate emergency of national interest and provides for the actions to be taken by the various ministries, with the aim of reducing emissions to achieve the NDC objectives under the Paris Agreement. In this sense, the country has committed to accelerate the process of reducing emissions compared to the 2030 trend scenario to 30%, for the unconditional target of its NDC, to 40% in the case of a conditional target. It has also committed to achieving carbon neutrality by 2050. Enel has supported the strengthening of the Peruvian NDC (Nationally Determined Contribution), which will increase the development possibilities of renewable companies, and worked in 2022 on the Energy Transition Roadmap project in Peru together with the consulting firm Deloitte, as well as with public and private stakeholders;

- in Colombia, the Climate Action Act, which aims to regulate the objectives of the NDC and some other aspects, such as greenhouse gas inventories for the country's industrial sector. Enel has also promoted the adoption of the law through a special project, Energy Transition Roadmap, implemented with the support of the consulting firm CREE and in collaboration with public and private stakeholders;

- also in Colombia, Resolution 172, approved in 2022, establishing the Presidential Cabinet Intersectoral Commission on Climate Action. Enel has promoted the establishment of the Commission that will be tasked with verifying the country's progress and requirements regarding the implementation of measures aimed at respecting the international obligations acquired by the State in terms of climate action;

- in Costa Rica in September 2022, the Ministry of Environment and Energy published the Regulation of Chapter III of Law No. 9518 on Incentives and Promotion of Electric Transport, which regulates the application of temporary tax incentives for electric vehicles, as well as a temporary exemption from property tax for electric vehicles. Enel supported the publication of the law and promoted it, including through the Energy Transition Roadmap project, carried out with the support of the consulting firm Deloitte and in collaboration with public and/or private stakeholders;

- in Panama, the approval of Decree-Law No. 10, which adopts the National Climate Action Plan (PNAC). The Plan is seen as a crucial tool in promoting short- and long-term national and sectoral ambitions of climate policies, in order to facilitate and ensure the implementation of the NDC. Enel supported the promulgation of the Decree and promoted a collaboration network to support the dissemination and awareness of the results, providing the recommendations that emerged from the Energy Transition Roadmap project carried out in the country;

- in Guatemala, the development of an NDC, which envisages reducing greenhouse gas emissions by 11.2% by 2030 compared to the baseline scenario, as a target not conditional on international support. In 2022, Enel also worked in Guatemala on an energy transition roadmap for the country with the aim of proposing scenarios that will enable it to comply with the commitments made in the NDC;

- in Argentina, the decision to maintain the commitment made in the NDC 2020, ratifying the commitment to reduce emissions by 27.7% by 2030, compared to the first NDC presented in 2016. Also in this case, as in other countries, Enel has promoted advocacy actions with the development of the Energy Transition Roadmap project. Enel also promoted the adoption of Resolution no. 370 of 2022, which provides for a mechanism for the sale of electricity from renewable sources for distributors of the Wholesale Electricity Market (MEM) through the Renewable Energy Forward Market (MATER);

- in Chile, Enel implemented advocacy activities in support of the adoption of Law no. 21,455. This piece of legislation aims to address the challenges of climate change in the country and establishes climate governance mechanisms, setting the goal of carbon neutrality to be achieved by 2050 at the latest. Enel's vision is aligned with the law. This is also the background to Enel's decision to exit coal-fired generation in the country, which ended in September 2022 with the closure of the Bocamina II plant;

- again in Chile, in June 2022, the Ministry of Economy, Development and Tourism implemented Council Agreement No. 3121 of 2022, which creates the "Committee for the Development of the Green Hydrogen Industry" and establishes the rules that will govern its operation. The Committee's objective will be to accelerate the sustainable development of this industry by supporting the national strategy for green hydrogen. Enel has actively participated with several key players in the development of green hydrogen in the country and, moreover, has contributed to the public debate with the Energy Transition Roadmap project together with the consulting firm energiE, in collaboration with public and private stakeholders;

- in Brazil, Enel promoted the publication of Decree No. 11,075. It defines the procedures for the Sectoral Plans for Climate Change Mitigation and creates the National Greenhouse Gas Emission Reduction System (SINARE), in order to establish emission reduction targets for compliance with the national NDC. In addition, Resolution no. 6 of June 2022 of the National Energy Policy Council establishes the National Hydrogen Program (PNH2) and creates a Committee with the aim of coordinating and supervising the planning and implementation of the PNH2. Enel has also supported the strengthening of climate ambition envisaged by Brazil's second NDC update. This strengthening aims to increase emissions reductions by up to 50% by 2030 and achieve greenhouse gas neutrality by 2050. Enel has positively assessed these developments, which will increase the possibilities of development of renewable companies. It has supported legislative action with the Energy Transition Roadmap project carried out with the support of Deloitte and in collaboration with public and private stakeholders.

On the African continent, the main climate dossiers on which Enel has carried out advocacy activities are:

- in South Africa, the Climate Change Act, which creates a regulatory framework that will enable an effective response to climate change and a long-term transition to a low-carbon economy. The provisions of this law are in line with the Enel Group's operational objectives for renewable development in South Africa;

- in Morocco, Enel has promoted the adoption of a new law aimed at regulating the production of its own electricity, while guaranteeing the security of the national network and compliance with the principles of transparency and non-discrimination between the various market players. For the first time, the law also provides for the right of access to electricity storage services, as well as the right to sell the excess to the TSO.

In the Asia Pacific region, the main dossiers on which Enel's advocacy actions have focused are:

- in South Korea, the opening of the Power Purchase Agreement (PPA) market. It enables renewable generators to sell electricity directly to end users. Enel sees this initiative as a significant step towards the development and use of renewable energy. In addition, the first auction program dedicated to onshore and offshore wind has been launched. Enel also supported this legislative initiative as auctions conducted in a transparent and structured manner are recognized as one of the best support mechanisms for the development of renewable energy;

- also in South Korea, the 10th Basic Plan for Electricity Supply and Demand has been finalized. It envisages that the national generation mix to 2036 will be dominated by nuclear and renewables, with a gradually decreasing role for fossil fuels. Hydrogen and ammonia will be used in LNG and coal-fired power plants to reduce emissions. In this context, Enel has supported the development of renewable energy, but considers it inefficient to use hydrogen to produce electricity;

- in Vietnam, Enel promoted the finalization of a new and more ambitious NDC and, in particular, the strengthening of the unconditional objective of reducing greenhouse gas emissions by 15.8% by 2030 compared to a business-as-usual scenario of the reference year 2010. Subject to international support and financing, the 2030 reduction target has been raised to 43.5%. In this context, the country also reiterated its goal of achieving carbon neutrality by 2050. Enel supported this decision as it will accelerate the decarbonization of Vietnam by offering development opportunities for renewable sources and end-use electrification;

- in Australia, the Enel Group supported the plans of the new Federal Labor Government, aimed at mobilizing new financing for the expansion of the transmission grid and the establishment of a program to attract greater investments in the renewable energy sector;

- In India, ancillary services regulations have been adopted, establishing the introduction of Secondary Reserve Ancillary Services (SRAS) and Tertiary Reserve Ancillary Services (TRAS). The regulations allow all types of technology to provide SRAS and TRAS, including battery energy storage systems (BESS). Enel is in favor of these regulations and believes that they encourage the development of renewable sources and distributed storage;

- India's Ministry of Energy has also issued the Green Energy Open Access Rules. The objective of this regulation is to increase the availability and use of renewable energy and to promote the growth of the sale of energy from renewable sources with open access. Enel welcomed the enactment of this regulation as it believes that it fosters new opportunities for the development of renewable sources.

In addition to the direct advocacy activities, Enel is actively contributing to the debate on how best to address the challenge of climate change through **specific initiatives**. In 2022, these included:

- **the GSEP (Global Sustainable Electricity Partnership) Global Electrification Monitor, aimed at illustrating the state of the art of decarbonization of energy end-uses through electrification**. The initiative was launched during the annual GSEP CEO Summit held in 2022 in Marrakech. Through the use of specific indicators for the 15 countries analyzed, it highlights to what extent the penetration of electrification in end-uses is in line with the International Energy Agency's scenarios for achieving the objectives set by the Paris Agreement. Also in this context, GSEP hosted a High-Level Dialogue on electrification during New York Climate Week 2022. In this context, 14 companies have signed the Catalyzing Electrification agreement, to accelerate electrification of energy end-uses, aimed at reducing greenhouse gases;

- **development and collaboration on several Energy Transition Roadmap projects, to stimulate debate on how best to accelerate the reduction of greenhouse gas emissions**. In this context, in Europe Enel collaborated with the Enel Foundation and Ambrosetti on the Energy Transition Roadmaps for Italy and Spain and supported Eurelectric in the work to define the new decarbonization roadmap for Europe. In Latin America, Enel has completed Energy Transition Roadmap projects in several countries, including Chile, Brazil, Peru, Panama and Costa Rica. In several cases, the results of these projects were presented and discussed in the context of COP 27 events;

- **strengthening commitments to Sustainable Development Goal 7 through the Energy Compacts (EC) promoted by UN-Energy and SEforALL**. Compacts are voluntary commitments by companies, governments and other stakeholders to accelerate action for universal access to clean and affordable energy for all. In this context, the Group announced Enel Chile's new Energy Compact, promoted in collaboration with the Universidad del Desarrollo and the Government of the Santiago Metropolitan Region, which aims to electrify the entire bus fleet by 2030 and expand the network of charging stations for electric vehicles, both public and private;

- **participation in a number of specific advocacy initiatives, through letters and appeals developed under** ad hoc **alliances**. For example, the Enel Group, together with over 150 business leaders, has signed an open letter by CLG Europe to the President of the European Commission, Ursula von der Leyen, to invite the EU to strengthen energy security by accelerating the green transition through the REPowerEU plan. In addition, Enel has participated in lobbying activities in support of the 100 gCO_2/kWh threshold – published in the Delegated Acts of the European Taxonomy – which allows an activity to be defined as environmentally sustainable if its CO_2 emissions are below this threshold. Enel not only supports compliance with this threshold, but also asks to specify how this threshold should be reduced over time until it reaches zero by 2050. Finally, through the We Mean Business Coalition, the Group signed a declaration during COP 27, together with over 270 companies and civil society leaders, reaffirming its commitment to limit global warming to 1.5 °C, while ensuring a just transition and a fair and inclusive future for all, and calling on governments to maintain it as a goal during the negotiations.

Enel's commitment to fight against climate change through associations and organizations

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The Group plays an active role in various industry and multi-stakeholder associations and organizations with the aim of promoting issues concerning energy transition and the commitment to fight climate change at national and global level. **Enel is committed to ensuring that the various industry associations, business networks and think tanks of which it is a member operate in full compliance with the objectives of the Paris Agreement and the decarbonization roadmap established by the Group**. Enel therefore systematically verifies the **consistency of the associations' positions with the climate policies shared at the Group level**. This verification process is carried out in two stages: (i) **before joining the association**, through an in-depth analysis of the body's by-laws, in line with the Climate Policy issued in September 2021; (ii) **after joining the association**, by actively contributing to its work and/or taking positions of responsibility within it or promoting the Enel Group's position within working groups.
Finally, **a review of the level of alignment of the associations with Enel's strategy is conducted annually**.
Where an association is found not to be in line with the objectives of the Paris Agreement and Enel's climate risk mitigation strategy, the Company assesses whether the misalignment could compromise the effectiveness of Enel's advocacy and participation, and may eventually decide to withdraw from the association.
By way of example, in recent years we have withdrawn our participation from some associations whose views on climate policies and how to achieve the energy transition were persistently different from Enel's in terms of fighting climate change and pursuing the goals set forth in the Paris Agreement. On the other hand, it may happen that in some associations, despite the existence of a misalignment, Enel decides to continue to be a member with the aim of influencing and aligning association decisions with its own vision of achieving the targets set by the Paris Agreement.

Back in 2020, an initial selection of the main industrial associations and organizations was carried out to identify alignment with Enel's climate position, an activity that continued in 2021.

In 2022, the analysis for assessing alignment with the Paris Agreement was extended to cover all associations involved in climate advocacy activities, of which Enel is a global member. In addition, as in 2021, **the list of the main associations most involved in climate advocacy activities with which Enel collaborates worldwide** (https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2022/enel-engagement-associations-involved-climate-policy-advocacy.pdf) was also published for 2022, including the assessment, for each of them, of the alignment with the Paris Agreement. This alignment was carried out on the basis of a specific methodology using targeted evaluations on the science of climate change, climate policies at global and national level, disclosures on the topic, and technologies proposed.
In particular, in 2022, the Enel Group identified for each country and/or region of presence and/or interest the main associations involved in advocacy activities of climate policies and conducted, for each of them, a qualitative assessment in order to identify the association's level of alignment with the Paris Agreement. This assessment was carried out on the basis of six main dimensions:

i. **Climate Science** – the extent to which the association involves itself in the issues related to climate change and in the results and evidence of the Reports published by the IPCC (Intergovernmental Panel on Climate Change);
ii. **Climate Policy** – the extent to which the association supports the UNFCCC process and other global policy initiatives;
iii. **Carbon Pricing Climate Policies** – the extent to which the association supports Carbon Pricing (Carbon Tax, Emissions Trading);
iv. **Non Carbon Pricing Climate Policy** – the extent to which the association supports other types of climate policies related to energy efficiency, renewable energy and GHG regulation;
v. **Communication** – the extent to which the association communicates on climate issues;
vi. **Energy Transition & Zero Carbon Technologies** – the extent to which the association supports innovative and effective technologies in the fight against climate change.

The methodology developed by Enel for assessing the alignment of associations to the Paris Agreement provides, in particular, that to each of the six dimensions listed above is assigned a level of alignment (high, medium or low). Then, a numerical score is given to each of the dimensions, which reflects the level of alignment assigned. The average of the scores of the six dimensions generates the final result of alignment of the association to the Paris Agreement, which can be: high, medium/high, medium, medium/low or low.

In general, Enel believes that the most effective approach when an association is not aligned with the Paris Agreement is to remain in such association with the aim of orienting and aligning its decisions with Enel's own vision of achieving the targets set by the Paris Agreement. However, in those cases where the yearly assessment of the level of alignment with the Paris Agreement for an association result to be "low", then Enel will activate an escalation strategy encompassing the following steps:

- Step 1: raise the issue, within the association, of the lack of alignment to the Paris Agreement to initiate an in-depth discussion with the aim of improving the alignment.
- Step 2: if, despite of the measures described in Step 1, the assessment of the level of alignment to the Paris Agreement still results to be "low" for two consecutive years, then the issue will be brought to the attention of the CEO, who will assess possible counteractions which may also include the decision for Enel to leave the association.

The following table summarizes the main results of the review of industry associations, conducted during 2022, according to the methodology of assessment of alignment with the Paris Agreement as set out above. In particular, for each association listed, the following information is reported: (i) brief description of the association; (ii) main actions taken by the association in 2022 and its assessment of alignment with the Paris Agreement; (iii) Enel's main roles within the association; (iv) Enel's main actions developed in 2022 within the association.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
Eurelectric	The Union of the Electricity Industry - Eurelectric is the sector association which represents the common interests of the electricity industry at pan-European level, plus its affiliates and associates on several other continents. The association counts over 34 full members, representing over 3,500 companies in Europe.	Eurelectric contributes to the development and competitiveness of the electricity industry, provides effective representation of the industry in public affairs and promotes the role of a low-carbon electricity mix. The level of alignment with the Paris Agreement was deemed "high".	Enel is well represented in the association, with more than 40 delegates from Group companies in Italy, Spain and Romania holding key positions within the association (at decision-making level and in the Committees, such as the Electrification and Sustainability Committee or the Sustainability Working Group).	In 2022, Eurelectric contributed to two major studies: • Market Design, developed by Compass Lexecon (expected publication date: March 2023); • Decarbonization speedways, which analyzes the EU's path towards carbon neutrality by 2050. Enel actively contributed to both initiatives, providing know-how, content and resources. Earlier this year, Eurelectric launched a report – co-produced with EY – at the EVision event, focusing on how electric vehicles and charging stations can become an asset for the networks that support them. The Head of Global e-Mobility at Enel X Way, spoke at the session "Ensuring the right regulatory framework for accelerating electric mobility". During the Power Summit 2022, Enel participated by organizing a session on Market Design. During the year, Enel helped support the development of Eurelectric's positions and advocacy actions on the Fit for 55 package. In 2022, Enel continued to serve as Chair of the Electrification and Sustainability Committee, Eurelectric's key committee for discussing and deciding on electrification, energy efficiency policies, and sustainability, including decarbonizing the economy beyond the power sector, one of the core themes of Eurelectric's vision.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
WindEurope	WindEurope is the voice of companies and organizations operating in the wind industry. It actively promotes wind energy in Europe and worldwide, has over 450 members and is active in over 40 countries.	Through effective communication and engagement in policy-making processes, WindEurope facilitates national and international policies and initiatives that strengthen the development of European and global wind energy markets. The level of alignment with the Paris Agreement was deemed "high".	Enel has participated in the association as a member of the Board and as Chair of the Working Group Market and Investment Working Group; Enel also participates with experts in all the association's working groups.	During 2022, Enel collaborated with WindEurope in the European Parliament and Council on the provisions of the "Fit for 55" package and REPowerEU, including in particular the revision of the Renewable Energy Directive. Enel has strengthened its presence in the association, especially on the priorities of electrification and in the debate on market design. Enel has participated in the main events organized by the association and has contributed to the major publications, reports and public letters issued by the association.
SolarPower Europe	SolarPower Europe represents organizations active along the entire PV value chain, with the aim of defining the regulatory environment and improving business opportunities for solar photovoltaics in Europe.	Among the objectives of the association is the successful positioning of solar PV based energy solutions in the European context through dedicated studies and energy market analysis. Through effective communication and engagement in policy-making processes, SolarPower Europe facilitates national and international policies and initiatives that strengthen the development of European and global solar energy markets. The level of alignment with the Paris Agreement was deemed "high".	During 2022, Enel's presence was confirmed within the Board, the Advocacy Committee and through the participation of experts in 12 of the association's 14 Workstreams. Enel continued its work within the Renewable Hydrogen and Electrification Workstream as Chair and Co-Chair of the Industrial Strategy Workstream.	During 2022, Enel collaborated with SolarPower Europe in the European Parliament and Council on the provisions of the "Fit for 55" package and REPowerEU, including in particular the revision of the Renewable Energy Directive. Enel is strengthening its presence in the association, especially on generation priorities and in the debate on market design. Enel has participated in the association's main events, including the "CEOs Retreat" and the SolarPower Summit in April 2022, the Sustainability Solar Europe event in October 2022 and various initiatives, including the sponsorship of the Solar Stewardship Initiative (SSI).
The European Association for Storage of Energy (EASE)	EASE, located in Brussels, Belgium, is the leading member-supported association representing organizations active across the entire energy storage value chain. EASE supports the deployment of energy storage to support the cost-effective transition to a resilient, climate-neutral, and secure energy system.	EASE promotes the role of storage in a decarbonized energy system. The level of alignment with the Paris Agreement was deemed "high".	Enel chairs the association. Enel is also active in the Applications & Economics Working Group.	Enel has worked on numerous joint position papers and common recommendations to address specific regulatory challenges that could affect the storage value chain. In addition, it has collaborated with the association to respond to the EC's numerous public consultations, for example the "Renewable Energy Projects – Power Acquisition Processes and Agreements" (April 2022). Enel also contributed to the position paper on the next market design review (December 2022) and was an exhibitor and sponsor at the fifth "EASE Energy Storage Global Conference" in October 2022. Several Enel representatives attended the event to discuss the latest developments on energy storage technologies, regulatory and policy frameworks, and the future of the storage market.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
SmartEn	SmartEn is the association of market players promoting decentralized and decarbonized power generation in favor of flexible demand for renewable energy sources.	SmartEn promotes the energy transition through smart cooperation between consumption, distribution, transmission and generation, acting as an equal partner in an integrated energy system. The level of alignment with the Paris Agreement was deemed "high".	Enel's presence at the top of the association's structure was confirmed in 2022 with its re-election to the Board and to the position of Chair of the Distributed Flexibility Task Force. Enel also participates with experts in the Digital Agenda and e-mobility working groups.	In 2022, the President of the EU DSO Entity (Enel's e-distribuzione representative) joined the SmartEn Advisory Council with the aim of bringing the DSOs' perspective on market flexibility to the association. Enel has worked on numerous position papers and shared recommendations relating to the energy efficiency of the system, the empowerment of energy users and the decarbonization of the energy sector, proposing the Group's positioning on the "Fit for 55" package. Finally, Enel sponsored the event on "Demand-Side Flexibility: Quantification of Benefits in the EU" (28 September 2022) and participated as a speaker at the event with two high-level representatives.
RES4Africa	RES4Africa brings together a network of international leaders from across the clean energy value chain and supports the creation of an enabling environment for renewable energy investments and strategic partnerships. RES4Africa serves as a bridge between members and partners in emerging markets to exchange perspectives and expertise.	The "renewAfrica" initiative was officially launched at European level in 2019. It is a European initiative supported by multiple stakeholders to accelerate the transition to sustainable energy in Africa. It promotes the creation of a European program capable of catalyzing investment in renewable energy for the future sustainable development of the continent. RES4Africa is a member of the Africa-Europe Foundation, a platform launched in 2021 by Friends of Europe and the Mo Ibrahim Foundation to facilitate multi-stakeholder dialog, catalyze collaboration and unlock new opportunities that can transform dialog into action. The level of alignment with the Paris Agreement was deemed "high".	Enel Green Power is one of the funding partners and chairs the association, with the current CEO of Enel Green Power taking the role.	Participation in working groups, events, co-definition of work priorities, co-drafting of position papers.
World Business Council for Sustainable Development (WBCSD)	The WBCSD is a global organization led by the CEOs of more than 200 international companies working together to accelerate the transition to a Net-Zero, nature positive and more equitable future.	The WBCSD works to support leading sustainability companies to drive integrated actions to address global challenges through the sharing of best practice and the development of tools and guides that can stimulate and advance members on their own pathway to sustainability. The level of alignment with the Paris Agreement was deemed "high".	Enel holds the role of Council Member, through the CEO.	In 2022, Enel actively participated in climate-related projects (for example, Policy Advocacy and Member Mobilization, SOS 1.5, Energy Pathway and Mobility Decarbonization), as well as contributing to the creation of position papers and publications.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
United Nations Global Compact (UNGC)	The United Nations Global Compact is the largest global corporate sustainability initiative, created with the goal of promoting a sustainable economic model through the development and implementation of sustainable practices and policies.	UNGC works to create a sustainable and inclusive global economy by supporting companies to do business responsibly, aligning strategies with the ten principles on human rights, labor, environment and anti-corruption, as well as taking action to promote the goals of the 2030 Agenda. The level of alignment with the Paris Agreement was deemed "high".	Enel co-chairs the CFO Coalition, and is also the Patron of the new Transformational Governance initiative.	The Group has participated in working groups and meetings concerning, inter alia, the Just Transition Think Lab, as well as contributing to the creation of position papers and publications.
American Clean Power Association	American Clean Power (ACP) is the voice of companies across the wind, solar, storage, and transmission industries that are powering America's future and providing cost-effective solutions to the climate crisis, while creating jobs, spurring massive investment in the US economy, and driving high-tech innovation across the nation.	ACP focuses on US federal legislative and administrative advocacy, while also supporting advocacy at State level. It supports policies that will transform the US power grid into a low-cost, reliable, renewable energy system, including support for renewable energy demand, sensible reforms, permitting, transmission system construction, predictable international trade rules, and workforce development. The level of alignment with the Paris Agreement was deemed "high".	Enel holds a position on the Board of Directors of ACP.	Advocacy for federal legislation to accelerate the deployment of wind, solar, energy storage, transmission and green hydrogen technologies. Commitment to collaborate with the association to promote clean energy.
Confindustria	Confindustria is the main association representing manufacturing and service companies in Italy. Its members include over 150,000 small, medium and large companies. Confindustria's mission is to promote the development of enterprises as the driving force behind the country's economic, social and civil growth.	Development of workshops, seminars and summary documents including observations and/or proposals suggested by the association regarding energy and environmental issues in local, national and European contexts. The level of alignment with the Paris Agreement was deemed "medium/high".	In addition to holding important roles in local and national associations, Enel takes part in various technical working groups (most of all, the Energy and Environment Working Groups), seeking to promote activities in line with climate targets.	Advocacy activities for specific initiatives such as: preliminary draft analysis of the "Operating Methods" relating to the draft regulation governing the Waste Traceability System and the National Electronic Register for Waste Traceability (RENTRI); analysis and submission of comments on the proposal for an EU regulation on F-gases; analysis and preparation of amendment on excavated earth and rocks in small construction sites; contributions for Confindustria positioning documents on the public consultation on the PNRR measure on agrivoltaic.
Edison Electric Institute	The Edison Electric Institute (EEI) is the association that represents all investor-owned US electric utilities.	EEI focuses on US federal legislative and administrative advocacy, while also supporting advocacy at regional and State level. It works to encourage policies that support investor-owned private utilities, with a focus on decarbonization. The level of alignment with the Paris Agreement was deemed "medium".	Enel is a member of various working groups.	Enel carries out federal lobbying activities in the United States (legislative and administrative), advocacy activities at the FERC and at the ISO/RTOs, as well as direct and indirect State lobbying activities (through funding). In addition, Enel supports greater penetration of renewables for utilities.
Clean Energy Council	The Clean Energy Council (CEC) is the spearhead of the clean energy industry in Australia. It represents hundreds of leading companies operating in the solar, wind, energy efficiency, hydro, bioenergy, energy storage, geothermal and marine sectors, along with over 5,800 solar installers as members.	Its mission is to work with local, State and Federal governments to solve technical, policy and financial problems in the challenges faced by the clean energy sector. The level of alignment with the Paris Agreement was deemed "high".	Enel is a key member with a strategic presence in important working groups and committees, such as the Policy and Advocacy Advisory Committee.	Participation in meetings, committees and working groups.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
Solar Energy Industries Association	The Solar Energy Industries Association (SEIA) is the national trade association for the solar and solar + storage industries. SEIA advocates policies that will enable solar to reach 30% of US electricity generation by 2030, to create jobs in every community, and to establish fair market rules that promote competition and the growth of reliable, low-cost solar power.	SEIA focuses on US Federal legislative and administrative advocacy. It works to defend the interests of the solar energy industry. The level of alignment with the Paris Agreement was deemed "high".	Enel is a member with a presence in several working groups.	Active participation to promote large-scale solar power and address the critical issues in the sector.
International Emissions Trading Association (IETA)	IETA is a non-profit corporate organization with more than 100 members across companies, geographic areas and disciplines promoting the use of carbon trading as a lever to pursue global climate ambition.	IETA's mission is to enable companies to engage in climate action and establish effective market-based trading systems for greenhouse gas (GHG) emissions. In pursuit of its mission, it aims to: a) promote an integrated view of carbon markets and prices; b) participate in the design and implementation of national and international rules and guidelines; and c) provide up-to-date and credible information on emission trading. The level of alignment with the Paris Agreement was deemed "medium/high".	Enel holds a position on the Board of IETA, contributing to help focus IETA's attention on ensuring the truly sustainable implementation of Emissions Trading systems worldwide. Enel is also active in working groups and task forces.	Participation in dedicated high-level workshops in European and international forums on GHG markets and trading systems; position papers supporting the Group's position on the EU ETS; promotion of market mechanisms and participation in GHG markets; engagement with Latin American policy makers.
Confederación Española de Organizaciones Empresariales (CEOE)	CEOE is the national business association representing and defending Spanish companies and entrepreneurs. CEOE voluntarily integrates two million companies and freelancers from all business sectors. In Europe, it is an active part of BusinessEurope, which brings together European business associations. It actively supports the international negotiation on climate change, participating in the process and assisting the COP.	It represents and defends Spanish companies and entrepreneurs in economic, social and taxation matters etc. before the government, State agencies, trade unions, political parties and international institutions. It analyzes laws and government proposals, and makes proposals on behalf of its members. The level of alignment with the Paris Agreement was deemed "high".	Endesa is a member of the commission for industry, international relations, health and consumer affairs, and the finance economy.	Participation in various commissions where topical issues at the European and Spanish level are analyzed, and in several work groups.
Kyoto Club	Kyoto Club is a non-profit organization, which members are business companies, associations and local municipalities and governments engaged in reaching the greenhouse gas reduction targets set by the Kyoto Protocol, by the EU ones for 2030 and by the December 2015 Paris Agreement.	Development of documents, position papers, workshops, training courses, campaigns and projects aimed at professionals, operators in the sector, public administrators and students concerning the latest issues in the energy-environment sector, from renewables to e-mobility and the circular economy. The level of alignment with the Paris Agreement was deemed "high".	Enel is a member of the Kyoto Club and participates in round tables on renewable development, energy efficiency, environmental education and resilience to climate change.	Joint working tables on renewables development, specific advocacy activities and policy proposals on the energy transition.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
Elettricità Futura	Elettricità Futura is the main association of Italian electric utilities. It defends their interests and creates value by supporting the sector in the energy transition process.	Elettricità Futura represents associates and their issues on institutional tables in Italy and Europe. It promotes networking among companies through meetings and initiatives on specific topics, including working groups and technical tables on energy and energy transition issues. The level of alignment with the Paris Agreement was deemed "medium/high".	Enel is a shareholder in Elettricità Futura and actively participates in working groups and technical tables.	Positioning on the European Commission's "Fit for 55" package; positioning on support measures for renewable energy communities; discussion tables on sustainable hydrogen.
European Heat Pump Association (EHPA)	The European Heat Pump Association (EHPA) is the voice of the European heat pump industry in Brussels. The association works to define a European policy to enable the heat pump industry to thrive and become the first choice for heating and cooling by 2030.	The EHPA supports, communicates and provides expert political, technical and economic input to European, national and local authorities and its members. It organizes high-level events, and manages and participates in several EU projects. All its activities are aimed at accelerating the development of the market for heat pumps for heating, cooling and hot water production. The level of alignment with the Paris Agreement was deemed "medium/high".	Enel is a member of various committees and task forces, and participates in a number of working groups.	Enel joined EHPA in 2022, sharing with the association the objectives of electrification and achieving the "Fit for 55" targets at European level.
Bettercoal	Bettercoal is the internationally recognized standard that works toward a responsible global coal supply chain. Bettercoal assesses coal producers according to the three ESG – Environment, Social and Governance – pillars, according to the criteria set out in its code of conduct, and develops plans for each company it assesses to improve their business practices. Founded by a group of major coal buyers, Bettercoal aims at constant improvements in sustainability practices in coal mining.	During 2022, as members of Bettercoal within the working group dedicated to Colombia, we participated in the delegation that traveled to Colombia, for the first time since 2018, with the aim of further improving the understanding of the critical issues surrounding coal mining in the country. We can therefore promote better relations with all stakeholders involved in this complex environment, from businesses to government and from international NGOs to local communities. During the visit, several meetings were organized with about 64 stakeholders, including business associations, communities and local governments. In addition, in 2022, following the change in international scenarios, a new working group was established, dedicated specifically to South Africa. The level of alignment with the Paris Agreement was deemed "high".	Enel is a member of various working groups and is represented on the association's Board.	Enel has promoted specific sustainability issues with regard to coal producers.

Industry association	Description	Main actions undertaken by the association in 2022 and level of alignment with the Paris Agreement	Enel's main roles within the association	Main actions taken by Enel within the association in 2022
European Business Council - Energy Committee	The European Business Council (EBC) currently represents around 2,500 European companies and individuals, which become its members of it through their respective national chambers of commerce or business organizations. Many of these companies participate directly in one or more of the EBC's many sectoral committees, whose work covers a wide variety of economic sectors. The EBC consists of 22 sectoral committees, whose work aims to improve the local business environment in a wide range of economic sectors.	EBC's core mission is to foster a barrier-free business and investment environment that makes doing business in Japan less difficult and costly. The level of alignment with the Paris Agreement was deemed "high".	Enel is a member of several committees and working groups.	Enel has participated in the drafting of a white paper on Demand Response.
Red Argentina de Pacto Global	The largest corporate social responsibility initiative in the country, with over 900 participants and a presence in 20 provinces. Its goal is to mobilize the business sector and other stakeholders to commit to the 10 universal principles of the United Nations and, consequently, to undertake the purpose of contributing to the solution of the greatest challenges facing the planet and humanity between now and 2030: the Sustainable Development Goals approved by the United Nations General Assembly in September 2015.	The association treats global goals as local issues, as the cooperation of all stakeholders, both public and private, in every corner of the planet and structured at global and local levels, will be necessary to make substantial progress on the common and shared 2030 Agenda. The local Network, launched in 2004, currently has a Board of Directors consisting of 34 members, whose mandate is renewed every two years at a Shareholders' Meeting. The level of alignment with the Paris Agreement was deemed "high".	Enel is a member of various working groups and actively participates in a number of workshops.	Enel has actively participated in the debate and workshops on climate and energy issues as organized by the association.

For the full list of the main associations and the related assessment, follow this link to the Enel website: https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/2022/enel-engagement-associations-involved-climate-policy-advocacy.pdf.

Enel's governance model to face climate change

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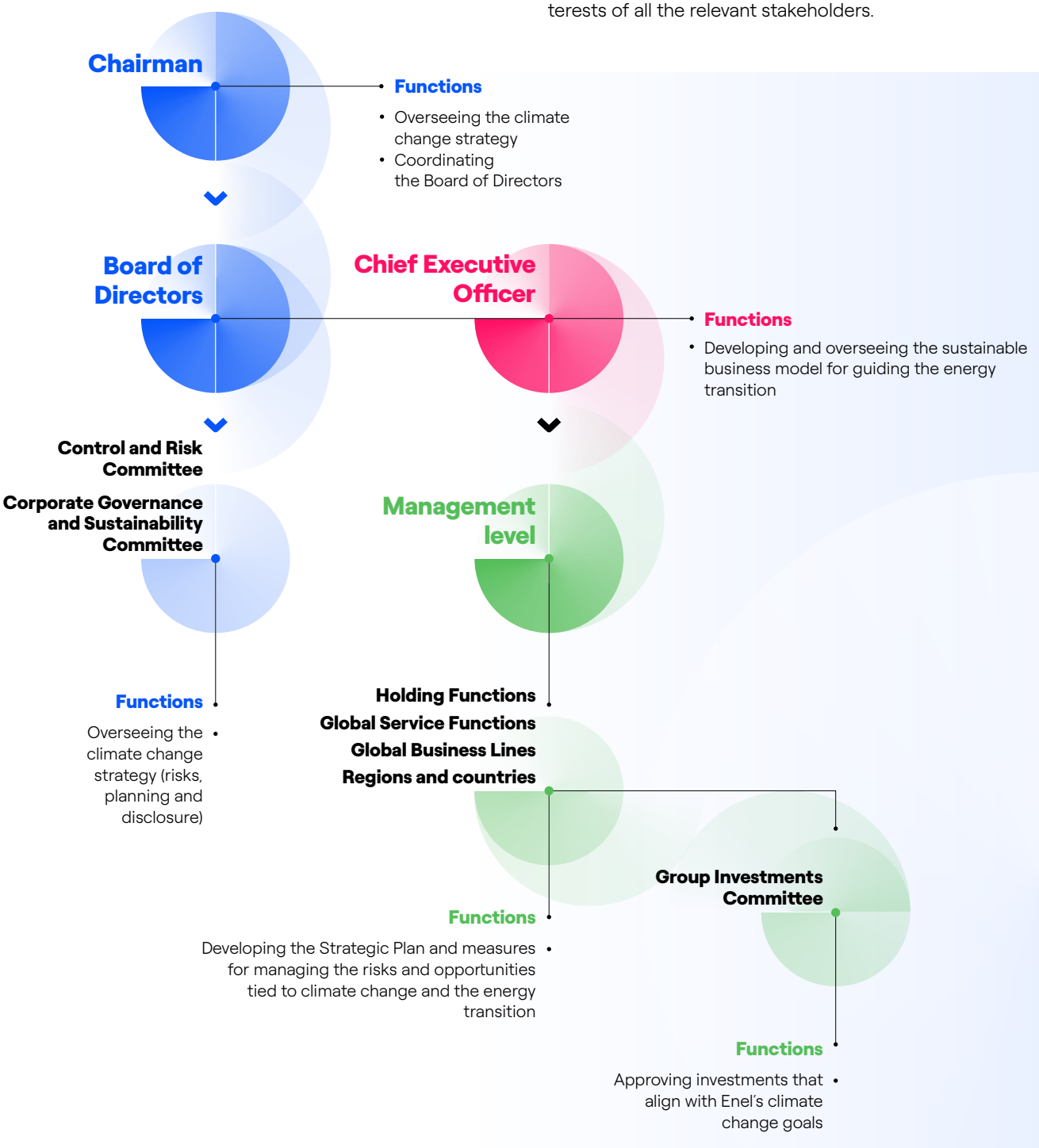
Competences of corporate bodies

The corporate governance system adopted by Enel is oriented toward the goal of sustainable success, as it aims to create value for shareholders over the long term, promote awareness of the importance of the Enel Group's operating activities, from an environmental and social point of view, and the consequent need to adequately consider the interests of all the relevant stakeholders.



The Board of Directors of Enel SpA:

- Pursuant to the Articles of Association, the Board of Directors of Enel SpA is endowed with broad power for the **ordinary and extraordinary administration** of the Company and has the authority to carry out any action deemed appropriate for the implementation and achievement of the corporate purpose.
- It plays a **central role in corporate governance** as the body vested with powers related to the strategic, organizational and control policies of the Company and the Group, the sustainable success of which it pursues. In this context, the Board examines and approves the Company's strategy, including the annual budget and the Business Plan (which incorporate the main objectives and actions planned, including with regard to sustainability issues, to drive the energy transition and tackle climate change), taking into consideration the analysis of issues relevant to the generation of long-term value and thus promoting a sustainable business model.
- It plays a **guidance role and provides an assessment of the adequacy of the Internal Control and Risk Management System** (so-called "ICRMS"). In this regard the Board defines the nature and level of risk compatible with the strategic objectives of the Company and the Group, including in its assessments any elements that may be relevant in the perspective of the Company's sustainable success. The ICRMS consists of the set of rules, procedures and organizational structures aimed at enabling the identification, measurement, management and monitoring of the main corporate risks, including risks related to climate change and, more generally, risks that the Group's activities may determine in the fields of environment society, personnel and human rights.
- The Board **defines the remuneration policy** for Directors, Auditors and Key management personnel, based on the pursuit of the Company's sustainable success and considering the need to arrange, retain and motivate people with the skills and professionalism required by the role covered, submitting this policy to the Shareholders' Meeting for approval.
- During 2022, the Board addressed **climate-related issues**, reflected in the strategies and related implementation methods in **12 of the 16 meetings held**, in particular during: (i) the review and approval of the Business Plan of the Company and the Group; (ii) the definition of Enel's remuneration policy for 2022; (iii) the review of the contents of the Sustainability Report for the 2021 financial year, coinciding with the Consolidated Non-Financial Statement pursuant to Legislative Decree no. 254/2016 for the same year. In addition, it discussed climate-related issues as part of the in-depth studies dedicated to operations related to the decarbonization strategy and sustainable finance, as well as in relation to investor dialog activities.

In accordance with the provisions of the Italian Civil Code, the Board of Directors has delegated part of its management responsibilities to the Chief Executive Officer and based on the recommendations of the Italian Corporate Governance Code, and provided for under the relevant CONSOB regulations, has appointed the following Board Committees which provide recommendations and advice.

The Corporate Governance and Sustainability Committee:

- **Assists the Board of Directors in assessment and decision-making activities concerning the Company's and Group's corporate governance** and sustainability, including climate change issues and the dynamics of the Company's interaction with all the stakeholders.
- With regard to sustainability issues, it **examines**, *inter alia*, (i) the guidelines of the **Sustainability Plan**, **including the climate objectives** defined therein, as well as the Priorities' Matrix, which identifies the priority issues for stakeholders in light of the Group's industrial strategies; (ii) **the methods for implementing the sustainability policy**; (iii) **the general approach and structure of the contents of the Non-Financial Statement and the Sustainability Report** (possibly as a single document), as well as the completeness and transparency of the information contained therein, including on climate change, and their consistency with the principles laid down by the reporting standard used, issuing a prior opinion on this matter to the Board of Directors called upon to approve these documents.
- During 2022, the Board dealt with **climate-related issues**, reflected in the strategies and related implementation methods in **3 of the 6 meetings held**, in particular during the review of: (i) the Sustainability Report for the 2021 financial year, coinciding with the Consolidated Non-Financial Statement pursuant to Legislative Decree no. 254/2016 for the same year; (ii) the materiality analysis and the guidelines of the Sustainability Plan 2023-2025; (iii) updates on the main activities carried out in 2022 by the Enel Group in the field of sustainability, on the status of implementation of the Sustainability Plan 2022-2024 and regarding Enel's inclusion in the main sustainability indices.

The Control and Risk Committee:

- The Committee has the task of **supporting the Board of Directors' assessments and decisions relating to the ICRMS**, also as concerns climate risks and those relating to the approval of periodic annual and interim financial and non-financial reports.
- **It assesses the suitability of annual and interim financial and non-financial information** to represent correctly the business model, the strategies of the Company and the Group it heads, the impact of the Company's activities and achievements, coordinating with the Corporate Governance and Sustainability Committee as regards periodic non-financial information.
- **It examines the relevant issues for the purposes of the ICRMS dealt with in the Non-Financial Statement and the Sustainability Report** (possibly as a single document) and containing the Company's climate disclosure, issuing a prior opinion on the matter to the Board of Directors, which is called upon to approve these documents.
- During 2022, the Board dealt with **climate-related issues**, reflected in the strategies and related implementation methods in **8 of the 14 meetings held**, in particular during the review of: (i) assessment of the relevant issues for the purposes of the ICRMS dealt with in the Sustainability Report for the 2021 financial year, coinciding with the Consolidated Non-Financial Statement pursuant to Legislative Decree no. 254/2016 for the same year; (ii) the in-depth analysis of investor dialog activities; (iii) meetings with the Heads of the Enel Green Power and Thermal Generation and Enel Grids Global Business Lines and the Europe and North America Regions in relation to the activities carried out and the existing risks in the respective remits, and to the tools used to mitigate their effects; (iv) the analysis of the degree of compatibility of the main risks related to the strategic objectives of the Business Plan.

The Nomination and Compensation Committee:

- **Supports the Board of Directors, *inter alia*, in its assessments and decisions relating to the size and optimal composition of the Board itself and its Committees, as well as the remuneration of Directors and Key management personnel**. In this regard, compensation policy for 2022 specifies that a sizeable portion of the variable compensation, both short and long term, of the Chief Executive Officer/General Manager and Key management personnel is connected, *inter alia*, to performance objectives concerning sustainability and climate.

The Chairman of the Board of Directors:

- In exercising the function of stimulating and coordinating the activities of the Board of Directors, plays a **proactive role in the process of approving and monitoring corporate and sustainability strategies**, which are strongly oriented toward decarbonization and the electrification of consumption.
- During 2022, the Chairman also chaired the Corporate Governance and Sustainability Committee.

The Chief Executive Officer:

- In exercising the power he/she holds, the CEO **has defined a sustainable business model** by identifying a strategy targeted toward guiding the energy transition toward a low-carbon model; furthermore, within the scope of the powers assigned, the CEO manages the business activities connected to Enel's commitment to combating climate change.
- **He/she reports to the Board of Directors on the activities carried out when exercising proxies**, including the business activities aimed at maintaining Enel's commitment to tackling climate change.
- **He/she represents Enel in various initiatives dealing with sustainability**, holding relevant positions in institutions of international importance such as the Global Investors for Sustainable Development (GISD) Alliance launched by the United Nations in 2019.
- As the person primarily responsible for the management of the Company, **he/she is the person most empowered to deal with institutional investors**, providing them with any appropriate clarifications on matters falling within the management powers entrusted to him/her, in line with the Policy for the management of engagement with institutional investors and with the generality of Enel's shareholders and bondholders.
- **He/she holds the role of Director in charge of setting up and maintaining the ICRMS**.

Enel's organizational model

Enel has a management team that assigns the responsibilities related to climate issues to the specific Functions that contribute toward guiding Enel's leadership in energy transition. Each area is responsible for managing the risks and opportunities related to climate change for their own area of competence.

- **The Holding Functions** are responsible for consolidating the scenario analysis and the management of the stra-

tegic and financial planning process aimed at promoting the decarbonization of the energy mix and the electrification of energy demand, as key actions in combating climate change.

- **The Global Business Lines** are responsible for the development of activities related to promoting renewable generation, the optimization of heat capacity, the digitalization of the electricity grid and the development of business solutions that enable energy transition and combating climate change.

- **The Global Service Functions** are responsible for adopting sustainable criteria, including climate change, in supply chain management and developing digital solutions that support the development of technologies enabling energy transition and combating climate change.

- On a local level, **the Regions and Countries** have the task of promoting decarbonization and guiding the energy transition toward a low-carbon business model, within their areas of responsibility. Furthermore, the Europe and Euro-Mediterranean Affairs Function is responsible for defining the Group's position on climate change, low-carbon policies and the regulation of the international carbon market on a European level.

Additionally, **the Group Investments Committee**, chaired by the Chief Executive Officer, grants approval for the expenses for investments related to business development. This committee also has the task of guaranteeing that all investments are fully in line with the Group's commitment to promoting a low-carbon business model and reaching decarbonization by 2040.

Incentive system

The remuneration policy for 2022 provides that a significant portion of the short- and long-term variable remuneration of the Chief Executive Officer/General Manager and Key management personnel will be tied to performance objectives concerning sustainability, including in relation to climate change. Specifically, with regard to:

- the **long-term variable remuneration** of the Chief Executive Officer/General Manager and Key management personnel, for which a performance objective is set, including, since 2018, with regard to the reduction of "Scope 1" greenhouse gas emissions by the Enel Group over the next three years (with a weighting of 10% of the total long-term variable remuneration), deemed suitable to adequately support the achievement of the climate change-related targets in the 2022-2024 Strategic Plan;
- **variable short-term remuneration** (MBO), the targets can include those relating to the specific company Function of each manager. For example, they include objectives related to the introduction of innovative products and services into the business for managers within Holding Functions, the development of renewable energy for managers within the Enel Green Power and Thermal Generation Global Business Line or related to energy transition solutions within the Enel X Global Retail Business Line.

For further details, see "The Enel governance model for sustainability" section of the 2022 Sustainability Report.

Climate change and long-term scenarios

3-3 | 201-2 | TCFD: Strategy

The Enel Group develops short, medium and long-term scenarios for macroeconomic, financial, energy and climate conditions in order to support its processes of planning, capital allocation, strategic positioning, and assessment of risks and resilience of the strategy.
For this purpose, the analysis and benchmarking of external energy transition scenarios was also carried out, which, together with the analysis of relevant reports on macroeconomic and commodity trends was a key starting point for defining the assumptions of Enel's long-term energy scenarios.

Global energy scenarios are typically classified by scenario families based on the level of climate ambition:

- **Business as usual/Stated policies**: energy scenarios based on business as usual/current policies. They provide a conservative benchmark for the future, representing the evolution of the energy system in the absence of additional climate and energy policies. Currently, these scenarios do not achieve the goals of the Paris Agreement;
- **Paris Aligned**: energy scenarios aligned with the Paris Agreement, i.e., that include a goal of limiting global average temperature increase to "well below 2 °C" compared to pre-industrial levels. To achieve this goal, scenarios in this category consider new and more ambitious policies for decarbonization, end-use electrification, and the development of renewables;
- **Paris Ambitious**: global energy scenarios that chart the path toward Net-Zero GHG emissions by 2050, in line with the most ambitious goal of the Paris Agreement, which is to stabilize the global average temperature rise at 1.5 °C, although with different ranges of probability.

This classification of scenario families was developed over the years and was further expanded in 2021 by collaborating with a working group coordinated by the World Business Council for Sustainable Development (WBCSD), which Enel took part in. The aim of the project was to devise a common and transparent approach to using public scenarios for companies in the energy industry, helping them to use them in order to assess the risks and opportunities associated with climate change, in line with the Task Force on Climate-Related Financial Disclosures (TCFD). The end result of this work is: (i) a report that provides context for the energy scenarios and describes the shared definition of the scenario families, as well as (ii) an online platform that gathers the variables of a variety of scenarios (WBCSD, 2023, Climate Scenario Analysis Reference Approach).

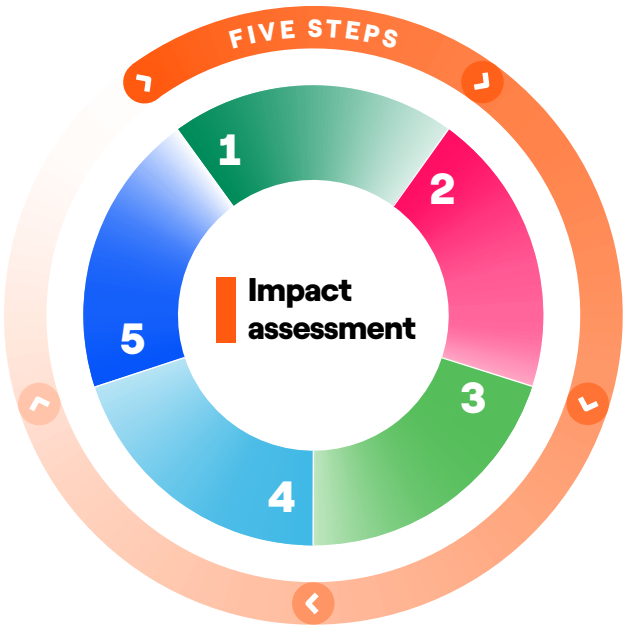
Enel's long-term scenarios are based on an overall framework so as to ensure consistency between the energy transition scenario and the physical climate scenario:

- the "energy transition scenario" describes how the generation and consumption of energy evolves in various sectors in a specific economic, social, policy and regulatory context;
- issues concerning future trends in climate variables (in terms of frequency and intensity of acute and chronic phenomena) define the so-called "physical scenario".

In order to assess the effects of transition and physical phenomena on the energy system, the Group relies on internal models that describe the energy system for each country under analysis, taking into consideration specific technological, social-economic, policy and regulatory aspects.

In 2022, with the aim of fostering global and local cross-functional collaboration to define both physical and energy transition scenarios, while ensuring consistent compliance with the requirements of the TCFD, two internal cross-functional communities dedicated to both physical and transition scenarios were established. These were primarily intended to discuss and define context and benchmark analyses and long-term scenario assumptions, to identify relevant impact categories, and to establish methods for assessing them so as to define strategic and industrial measures.

The adoption of these scenarios and their integration into corporate processes takes account of the guidelines of the TCFD and enables the assessment of the risks and opportunities associated with climate change. The process that translates the scenario phenomena into information that is useful for industrial and strategic decisions can be summarized in five steps:



1
Identification of trends and factors relevant to the business (e.g., electrification of consumption, heat waves, etc.)

2
Development of **link** functions connecting climate/transition scenarios and operating variables

3
Identification of **risks** and **opportunities**

4
Calculation of impacts on business (e.g., change in performance, losses, capex)

5
Strategic actions: definition and implementation (e.g., capital allocation, resilience plans)

Energy transition scenarios

The energy transition scenarios detail how the generation and consumption of energy evolve in a certain geopolitical, macroeconomic, regulatory and competitive context, depending on the available technology options; they correlate with greenhouse gas emission trends and climate scenarios and, consequently, a specific temperature increase by the end of the century compared to pre-industrial values.

The main assumptions considered when defining transition scenarios concern:

- **local policies and regulatory measures to fight climate change**, increase energy security and promote sustainable development, such as measures for reducing carbon dioxide emissions and fossil fuel consumption, for increasing energy efficiency, for consumer electrification, and the amount of renewable electricity generated;
- **the global macroeconomic and energy context** (for example, in terms of gross domestic product, population and commodity prices), also considering international benchmarks;
- **the evolution of technologies for the generation**, conversion and consumption of energy, in terms of both technical operating parameters and costs.

In 2022, Enel updated its framework of medium to long-term energy transition scenarios, and defined scenario narratives based on three main scenario "signposts", that is, the main drivers of uncertainty in relation to developments in the macroeconomic and energy sectors: achieving the Paris Agreement goals, the escalation of geopolitical tensions in the Russia-Ukraine conflict, and tackling the Covid-19 pandemic.

The Group's **reference scenario for long-term planning, called the Paris scenario**, is therefore:

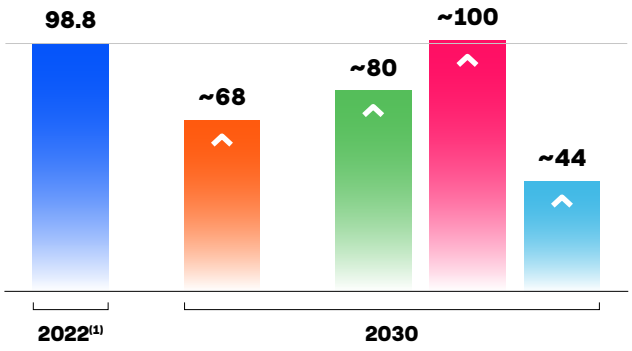
- a Paris-aligned scenario, which involves achieving the goals of the Paris Agreement, that is, a rise in the global average temperature below 2 °C compared to pre-industrial levels, and therefore anticipating a higher level of climate ambition than business as usual, but without necessarily assuming that the Net-Zero target will be reached by 2050, considering the current level of overall ambition at a global level;
- a scenario in which the geopolitical tensions heightened by the Russia-Ukraine conflict are expected to have lasting effects, resulting in an acceleration in electrification and renewables, as well as in a greater use of LNG in order to raise the level of security of

supplies in a changed environment, especially in Europe;
- a scenario marked by the expectation that Covid will be contained or become endemic, with a high vaccination rate and no need for large-scale lockdowns.

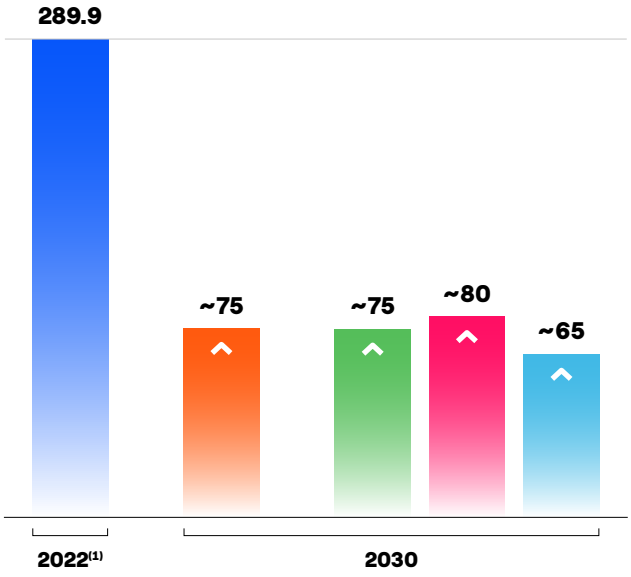
As for the climate ambition in the reference scenario, it is assumed that consumer electrification will continue to increase and that renewables will be further developed, partly due to the energy security policies adopted (such as REPowerEU in the EU and the Inflation Reduction Act in the United States). In this scenario, globally speaking, governments, companies, organizations and citizens effectively participate in the collective effort to mitigate greenhouse gas emissions.
With respect to the possibility of assuming the achievement of the most challenging objective of the Paris Agreement as a benchmark scenario for long-term planning, i.e. to stabilize the average global temperature within +1.5 °C, some uncertainty clearly remains as to whether certain countries could maintain inertial trajectories, delaying the decarbonization process that will lead to net zero emissions by 2050.

Assumptions concerning commodity price trends as inputs to the Paris scenario are consistent with external scenarios that achieve Paris Agreement goals. In particular, a sustained increase in the price of CO_2, caused by the gradual reduction of permit supply in the face of growing demand, and a sharp fall in coal prices, due to decreasing demand, are expected by 2030. With regard to gas, it is believed that price tensions will ease in the coming years in light of a realignment between supply and demand at a global level. Finally, oil prices are expected to stabilize gradually, for which we estimate peak demand around 2030.

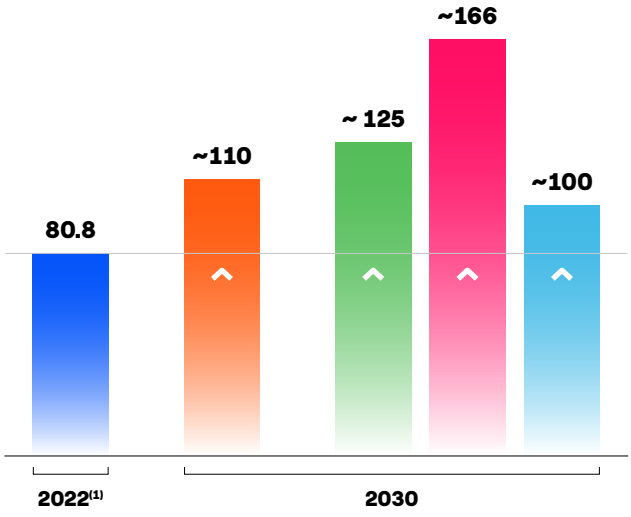
Brent ($/bbl)



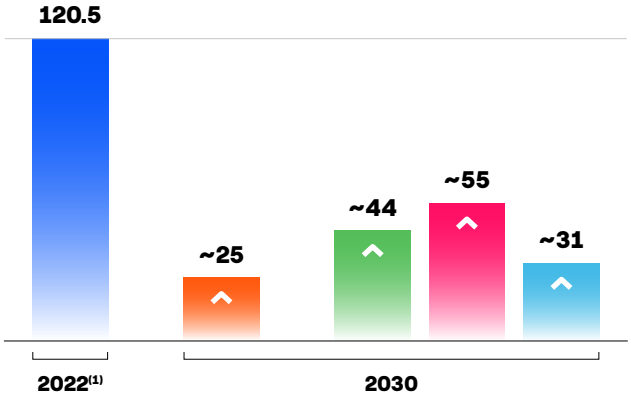
API2 ($/t)



CO_2 EU - ETS (€/t)



TTF (€/MWh)



Enel scenario | Average benchmark(2) | Max benchmark | Min benchmark

(1) Actual.
(2) Sources: IEA - Sustainable Development Scenario and Net Zero Scenario; BNEF; IHS green case scenario; Enerdata green scenario. N.B. The scenarios used as benchmarks have been published at various points throughout the year and may not be up to date with the latest market trends.

Alternative scenarios to the reference scenario were defined depending on the degree of climate ambition at global and local level: a "Slower Transition" scenario, marked by a slower speed of transition, and an "Accelerated Transition" scenario, marked by an increase in ambition compared to the reference scenario, specifically with respect to some of the characteristic variables of energy transition, such as the rate of electrification of final energy consumption, green hydrogen penetration or end users' attitudes towards more sustainable consumption patterns (e.g. modal shift with regard to public/private means of transport). These scenarios are used for sensitivity analysis in the evaluation of investments, strategic stress tests, risk assessment, and to identify business opportunities.

Local transition scenarios

Enel's reference scenario – the Paris scenario – covers all the countries and regions in which the Group operates, and therefore entails a climate ambition that is in line with the achievement of the Paris Agreement goals, supported by greater electrification of final energy consumption and the development of renewable capacity.
Local scenarios were broken down based on two complementary approaches:

- a bottom-up approach was taken in the main countries where the Group operates by using fundamental models to simulate the long-term balance of the entire energy system, explicitly demanding that the country as a whole limit its CO_2 emissions. The promotion of scenario variables that are relevant to the Group's activities (including electricity demand, rate of electrification, renewable capacity and distributed generation capacity, the number of electric vehicles and green hydrogen generation) is thus established using dedicated models with a time horizon up to 2050, with the aim of minimizing costs for the system by limiting CO_2 emissions;
- for the other countries of interest, the main variables of each scenario were established by conducting statistical analyses of internal and consensus data, compared with external scenarios that are in line with the Paris Agreement goals, which were made available by accredited national and international bodies and providers.

Internal transition scenarios were defined due to the need for increased modeling flexibility and increased geographical and operational granularity for the main variables that affect Enel's various businesses compared to the scenarios provided by the main external providers. The latter are typically outlined and made public on a global or regional level, with a few exceptions for larger countries, which only rarely coincide with the countries in which the Group operates or has an interest in.

Europe, focus on Italy and Spain

In the Paris scenario, emissions in European countries are decreasing in line with the European "Fit for 55" package, as a result of increased electrification of final energy consumption, driven by an increased use of renewables in the electricity generation mix.

Italy

In Italy, according to the Paris scenario, which is more ambitious than the existing national plan (Integrated Energy and Climate Plan, 2020), electrification is set to increase to 30% by 2030 (from 22% in 2021), with a level of renewable generation sufficient to meet over 70% of electricity demand (instead of around 55% as envisaged in the national plan).

The Slower Transition scenario is based on the assumption that Italy will remain firmly committed to the existing Integrated National Energy and Climate Plan as regards the ambition to reduce emissions, which is a less optimistic macroeconomic scenario than the Paris scenario, particularly in the initial years, with increased pressure when it comes to the price and supply of fossil fuels and raw materials.
The Accelerated Transition scenario has the same ambition of the Paris scenario when it comes to decarbonization. This scenario assumes that authorization processes for renewable energy generation plants will be revised more effectively, resulting in a slight increase in the number of installations, with the costs of technologies for green hydrogen generation falling more rapidly and its subsequent increased penetration in hard-to-abate sectors, at the expense of blue and gray hydrogen (hydrogen produced from gas, respectively with and without the use of CCS technologies). Moreover, the fact that people are becoming more concerned about climate change promotes more "climate-aware" behavior such as a modal shift in the transport sector (with a greater use of low-emission transport – for example, public transport).

Spain

In the case of Spain, the level of ambition established in the national plan is in line with the achievement of the Paris Agreement goals; in light of this, the Paris scenario foresees that the electrification rate in 2030 will be of 32% (compared to 24% in 2021) and that the development of renewable capacity will be such that the share of electricity demand met through renewable generation will increase to over 80% (compared to 53% in 2021). The alternative Slower Transition scenario, instead, assumes that there will be a delay in implementing policies for greater penetration of renewables and electric technologies, especially in the case of private cars. The Accelerated Transition scenario has the same ambition of the Paris scenario and envisages that authorization processes for renewables will be quicker. This scenario also assumes that there will be a higher incentive for the electrification of buildings and the complete adoption of the national green hydrogen strategy, which will make it possible to accelerate the construction of renewable energy generation plants coupled with electrolysers by 2030.

Latin America, focus on Brazil and Chile

Brazil

In the case of Brazil, according to the Paris scenario, which is more ambitious than the existing national plan (*Plano Decenal de Expansão de Energia 2031*, 2022) when it comes to reducing emissions, electrification is set to increase to 25% by 2030 (from 22% in 2021), with a level of renewable

generation sufficient to meet over 88% of electricity demand (instead of around 82% as envisaged in the national plan).
The Slower Transition scenario is based on the assumption of following the increasing emission trend of the existing national plan (*Plano Decenal de Expansão de Energia* 2031), with fewer hydroelectric plants being expanded in favor of new thermal (gas) capacity and a less optimistic macroeconomic scenario than the Paris scenario, particularly in the initial years.
The Accelerated Transition scenario increases the ambition of the Paris scenario when it comes to decarbonization, assuming that the regulatory framework for building offshore wind plants will be more quickly defined, resulting in increased exploitation of the potential of this technology, greater penetration of distributed solar generation, and further development of technologies for green hydrogen generation.

Chile

In the case of Chile, the Paris scenario is developed in line with the Net-Zero scenario set out in the government document PELP (*Planificación Energética a Largo Plazo*) with regard to reducing emissions, and includes ambitious targets for the generation and export of green hydrogen. As in the government scenario, it involves shutting down all coal-fired power plants by 2035, increasing taxes on CO_2 emissions and achieving high levels of electrification in transport by banning sales of conventional vehicles by 2040 and committing to full electrification of city bus fleets from 2040 onwards.
The Slower Transition scenario is marked by a slower energy transition, centered on implementing existing measures and policies that are less ambitious than the ones included in the Paris scenario.
The Accelerated Transition scenario reaches net zero emissions by 2050 and, compared to the Paris scenario, foresees an acceleration of the electrification process in all economic sectors, including transport. It also brings forward to 2035 the ban on conventional vehicle sales, a more ambitious target for green hydrogen exports, 100% of the electricity generation mix met by renewable sources by 2050, the phase-out of coal by 2030, and an additional increase in taxes on CO_2 emissions.

The physical climate scenario

Within the aforementioned framework, each scenario narrative was developed in such a way as to ensure consistency between the energy transition scenarios and the climate scenarios.
Climate change is playing an increasingly prominent role in these scenarios, with impacts not only on the transition of the economy towards Net-Zero emissions, but also physical impacts that can be divided into:

- **acute phenomena**, that is, short-term but rather intense phenomena, such as floods, hurricanes, etc., with potential impacts on assets (such as damage and business interruptions);
- **chronic phenomena** related to structural changes in the climate, such as the rising trend in temperatures, rising sea levels etc., which can cause, for example, constant changes in the output of generation plants and in electricity consumption profiles in the residential and commercial sectors.

Such phenomena are analyzed by looking at how they will behave in the future: this is done by selecting the best available data from the output data of climate models at various levels of resolution, as well as historical data.

Among the climatic projections developed by the "Intergovernmental Panel on Climate Change" (IPCC) on a global scale, the Group has chosen three that are in line with those taken into account in the latest IPCC report as part of the sixth assessment cycle (AR6). Such scenarios are associated with emission patterns that are linked to a level of the so-called Representative Concentration Pathway (RCP), each one being related to one of five social and economic scenarios that the scientific community defines as Shared Socioeconomic Pathways (SSP):

- **SSP1-RCP 2.6**: compatible with a global warming range below 2 °C, compared with pre-industrial levels (1850-1900), by 2100 (the IPCC projects approximately +1.8 °C on average over the 1850-1900 period); the Group associates the SSP1-RCP 2.6 scenario with the Paris and Accelerated Transition scenarios in analyses that take into account both physical variables and transition variables;
- **SSP2-RCP 4.5**: compatible with an intermediate scenario, in which an average temperature increase of around 2.7 °C is expected by 2100 when compared with the 1850-1900 period. The RCP 4.5 scenario best represents the current global climate and political context and the associated transition assumptions. This scenario projects global warming as being consistent with the estimated temperature increase that takes into account current global policies;[3] the Group associates the SSP2-

(3) Climate Action Tracker thermometer, global warming estimates for 2100 considering the current "Policies & Action" and "2030 Targets Only" (updated as of November 2022).

RCP 4.5 scenario with the Slower Transition scenario in analyses that take into account both physical variables and transition variables;

- **SSP5-RCP 8.5**: compatible with a scenario where no particular measures are taken to combat climate change. According to this scenario, the global temperature is estimated to increase by around +4.4 °C, compared to pre-industrial levels, by 2100.

The Group sees the RCP 8.5 scenario as a worst-case climate scenario, which is used for assessing the effects of physical phenomena in a context in which climate change is particularly severe, but is not considered likely at present. The RCP 2.6 scenario is used for the assessment of physical phenomena and for analyses that consider an energy transition that is in line with the most ambitious mitigation targets.
The analyses performed on the physical scenarios considered both chronic phenomena and acute phenomena. In describing specific complex events of interest, the Group looks at data and analyses conducted by both private entities and public and academic institutions.
Climate scenarios are global in nature. Accordingly, in order to determine the effects in the areas of relevance for the Group, they must be analyzed locally. The Group's active partnerships include an ongoing collaboration with the Department of Geosciences of the International Centre for Theoretical Physics (ICTP) in Trieste. As part of this collaboration, the ICTP provides projections for the main climate variables with a grid resolution that varies from approximately 12 km to approximately 100 km on the side and a time horizon of 2020-2050. The main variables are temperature, rainfall and snowfall, and solar radiation. With respect to previous analysis carried out, the current studies are based on the use of multiple regional climate models: the one developed by ICTP combined with five other simulations, selected as representative of the ensemble of climate models currently available in the literature. The output of the ensemble represents all the different climate models, which are averaged together. This technique is usually adopted in the scientific community to obtain a more robust, bias-free analysis mediated by the various assumptions that could characterize the single model.
For certain specific climate variables, such as gusts of wind, the Group also relies on other providers specializing in the topic.

In this phase of the study, the future projections were analyzed for Italy, Spain and all countries of interest to the Group in South America, Central America and North America, obtaining, also due to the use of the ensemble of models, a more definite representation of the physical scenario. In addition, similarly, the Group is also analyzing climate projection data for Africa, South Asia and South-East Asia, so as to cover all the main countries and regions where the Group operates globally.
The ICTP also offers scientific support when it comes to interpreting any other acquired climate data. Climate scenarios are always used for the countries that the Group is interested in, so that climate risk can be uniformly assessed.

Some of these phenomena involve high levels of complexity, as they do not only depend on climatic trends but also on the specific characteristics of the territory, and require an additional modelling activity for their high-resolution representation. For this reason, in addition to the climate scenarios provided by ICTP, the Group also uses Natural Hazard maps, which make it possible to obtain, with a high spatial resolution, the return times of a series of events such as storms, hurricanes and floods. The use of these maps, as described in the section "Risks and opportunities connected with climate change", is widely consolidated in the Group, which already uses this data based on a historical perspective to optimize insurance strategies. Furthermore, work is underway in order to be able to use this information also when processed in compliance with the projections of the climate scenarios.

Integration of climate scenarios into the Open Country Risk model

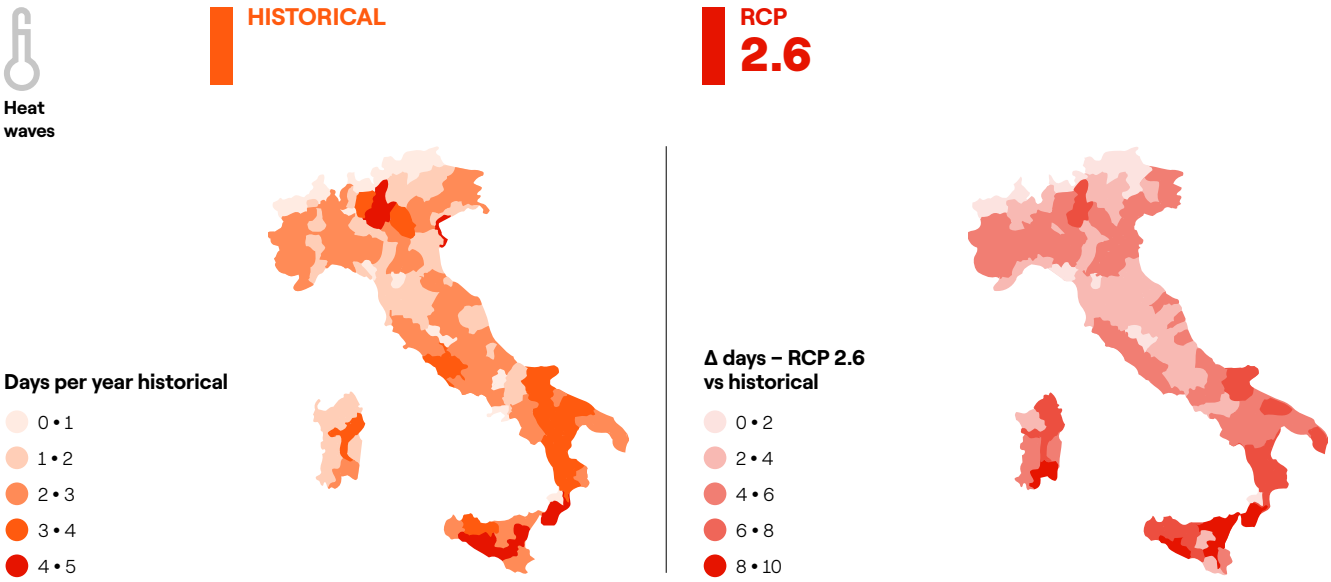
Enel has adopted a quantitative **Open Country Risk** assessment model that can accurately monitor the **level of risk of countries within its scope**, which includes four elements of risk:

- **economic factors**: measuring the economic resilience of each country, which is defined as a balanced position with respect to the external environment, effectiveness of domestic policies, banking and corporate system vulnerability, attractiveness in terms of economic growth and, ultimately, a **quantification of extreme climate events as a source of environmental and economic stress**;
- **institutional and political factors**: assessing the soundness of institutions and of the political context;
- **social factors**: a detailed analysis of social phenomena and of human rights aimed at measuring the degree of well-being, inclusion and social progress;
- **energy factors**: measuring the effectiveness of the energy system and how it fits into the energy transition and into the fight against climate change, which are crucial factors for assessing the sustainability of investments over a medium to long-term period.

Therefore, this work has made it possible to **also integrate climate change aspects into the Open Country Risk model**.
More specifically, by introducing extreme weather events into the Open Country Risk, the evolution of several climate hazards can be assessed, both in the country and on a global scale, in a uniform manner. In particular, a modular approach was adopted that will enable analyses to be progressively improved by including new physical phenomena and fine-tuning methodologies and reference data. **At present, it includes four climate phenomena: two are related to extreme temperatures, one to heavy rainfall and another to drought**. In addition, the possibility of introducing other phenomena such as extreme wind and rising sea levels is being looked into. Phenomena are described with a numerical index, developed by taking into consideration global distribution, with a resolution of approximately 100 km x 100 km and summarized in a composite index.

Italy

Acute phenomena: a number of acute phenomena in Italy were analyzed, such as fire risk, extreme rainfall and heat waves. The first two phenomena were described using standard metrics, which are extensively used in the literature. With regard to heat waves, custom metrics were also defined for Enel Grids, in addition to the standard metrics, which were identified by comparing extreme phenomena that occurred in the past and that could potentially damage underground grids.[4] The results in the RCP 2.6 scenario are shown in the figure. Therefore, the average number of days with heat waves in a year is likely to increase compared to the past, and will be more intense in areas currently affected by this phenomenon. Moreover, the situation is worse in the RCP 4.5 and RCP 8.5 scenarios.



Days per year by province experiencing a heat wave in the 1990-2020 period and average change in number of days in the RCP 2.6 scenario (2030-2050) with respect to historical figure indicated on the left.

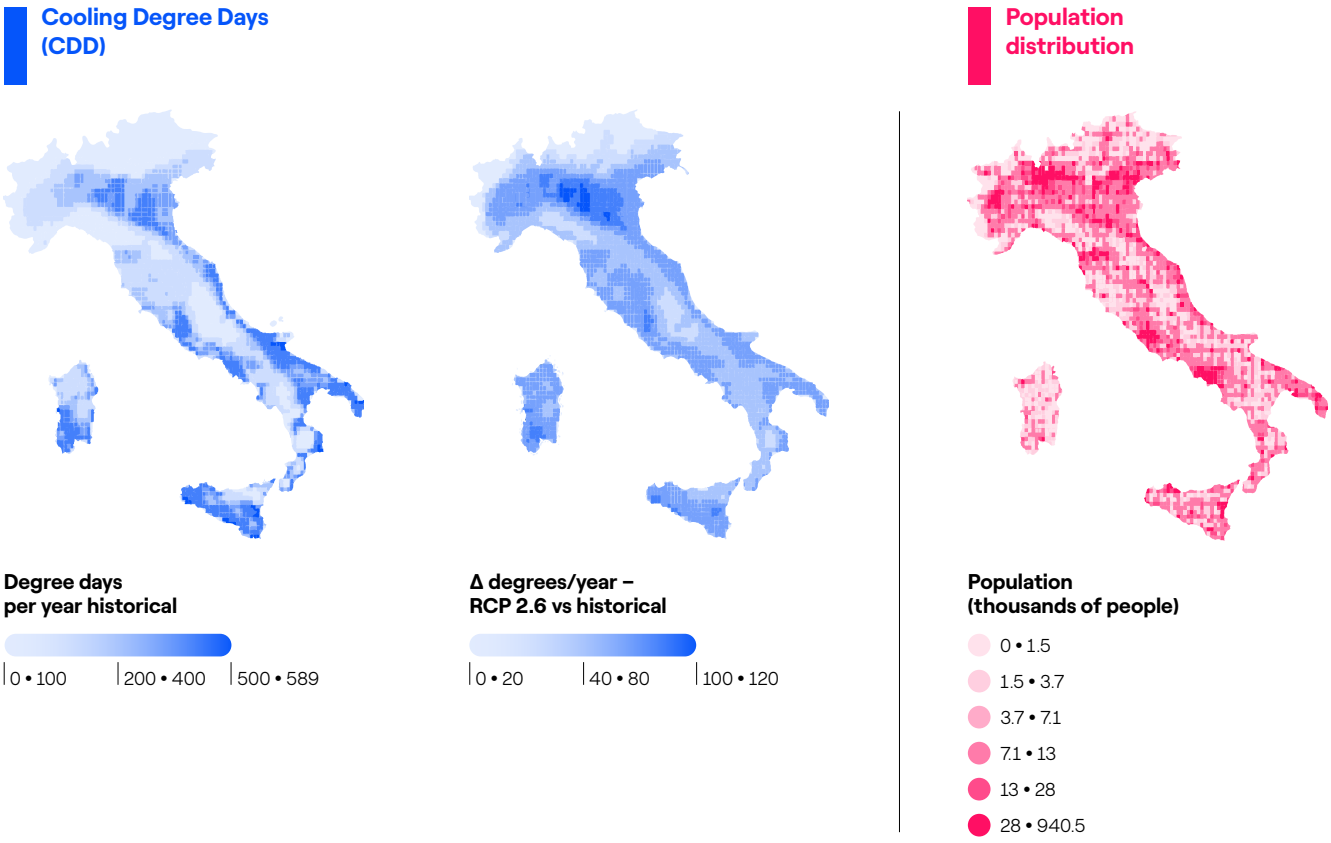
Extreme rainfall was studied by calculating the variation of daily rainfall above the 95th percentile, calculated as average annual millimeters in the periods of reference. A general increase in extreme rainfall can be observed in the period 2030-2050 in all analyzed scenarios. However, this is accompanied by a slight decrease in the annual sum of daily precipitation, if we exclude acute rainfall. In addition, this increase is more pronounced in Northeast Italy and along the Tyrrhenian coast.

As already shown in the analyses previously published by the Group, fire risk will also undergo important variations, which increase in the various climate scenarios considered. In particular, fire risk is described through the Fire Weather Index (FWI), a widely used indicator at international level that takes into account temperature, humidity, rain and wind in order to estimate a fire risk index. The data provided by the FWI can be useful in characterizing fire risk trends to support the business in managing it properly. The studies conducted, which examine the change in projections to 2030-2050 compared to 1990-2020, show that in all scenarios there is an increase in the number of high-risk days (index value > 45) in the summer season. This change mainly affects the islands and the southern regions of the country, where the increase in extreme risk days ranges from about +6 to +8 days compared to the historical period.

Chronic phenomena: chronic changes in temperature can be analyzed to obtain information on the potential effects on cooling and heating demand in local energy systems. Similar to what was done in 2020, Heating Degree Days (HDD) were used to measure heating requirements, that is

(4) The number of average days per year for each province were calculated, under the following conditions: at least five days in a row with a minimum temperature above the 95th percentile of the historical distribution (1990-2020) and at least 18 °C. In addition, these five days must be characterized by the absence of rain, and at least one day must have a maximum temperature above the 95th percentile of the historical distribution (1990-2020). This metric was calculated by considering the entire country at the original resolution of the climate data (approximately 12 km x 12 km). Therefore, the high-resolution data were aggregated according to each province, considering as a single heat wave the phenomenon occurring at the same time on several pixels within the same province, and considering as duration the maximum width by combining the various pixels.

the sum, extended to all days of the year with $T_{average} \leq 15$ °C, of the differences between the indoor temperature (T_{indoor} assumed as 18 °C) and the average temperature, and the Cooling Degree Days (CDD), which is the sum, extended to all days of the year with $T_{average} \geq 24$ °C, of the differences between the $T_{average}$ and T_{indoor} (assumed as 21 °C), respectively for heating and cooling requirements. Average country data were averaged over the nation, weighting each geographic node by population through the use of Shared Socioeconomic Pathways associated with each RCP scenario. The figure shows the CDDs, which were calculated across Italy at high resolution for the historical period, and the expected average variation in the RCP 2.6 scenario. It also shows how the distribution of population is used as a basis for calculation at a national level.[5] Generally speaking, an increase in CDDs is observed in the period 2030-2050, which are consistently higher than over the historical period, with an increasing trend in the various scenarios RCP 2.6 (+~45%), RCP 4.5 (+~80%) and RCP 8.5 (+~110%). On the other hand, a reduction in heating demand is observed, which is -8% in the RCP 2.6 scenario, -12% in RCP 4.5 and -16% in RCP 8.5 compared to the 2000-2020 period.



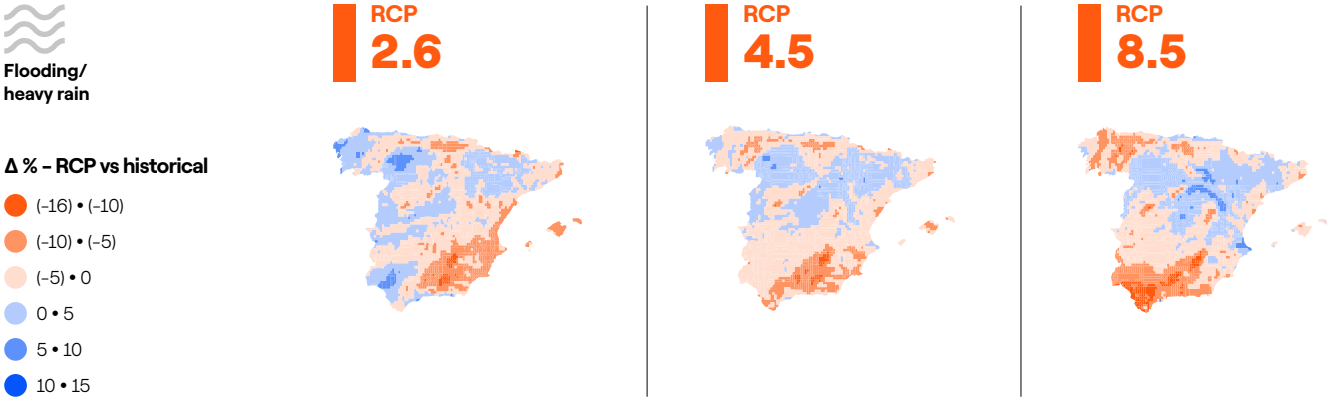
Cooling degree days (CDD) in the historical period (1990-2020) and expected change in the RCP 2.6 scenario. The distribution of population (1990-2020) on the same grid as the climate models is shown on the right, whereby the most densely populated areas that have the biggest impact on the calculation of the country-level metric are clearly visible.

With regard to total rainfall, variations in this phenomenon in the basins of interest for the Group's hydroelectric generation were analyzed. Based on this analysis, in which the period 2030-2050 was compared with the period 1990-2020, no significant changes emerge, with a general trend of slight decrease in Central and Southern Italy in the RCP 2.6 scenario.

(5) Please note that the population density varies in the various SSPs, while population distribution across the country is much the same.

Spain

Acute phenomena: for Spain, the acute rainfall phenomenon was analyzed first, calculated as average annual millimeters in the periods of reference.[6] As shown in the following figure, in which the 2030-2050 period is compared with the historical period 1990-2020, this acute event will be subject to variations throughout most of Spain as early as in the RCP 2.6 scenario. In particular, heavy rainfall will increase in the north, whereas in the southeast it is expected to decrease. The other scenarios show that there will be a decrease in heavy rainfall in the southern part of the country (in RCP 8.5 this reduction also affects the north-west).

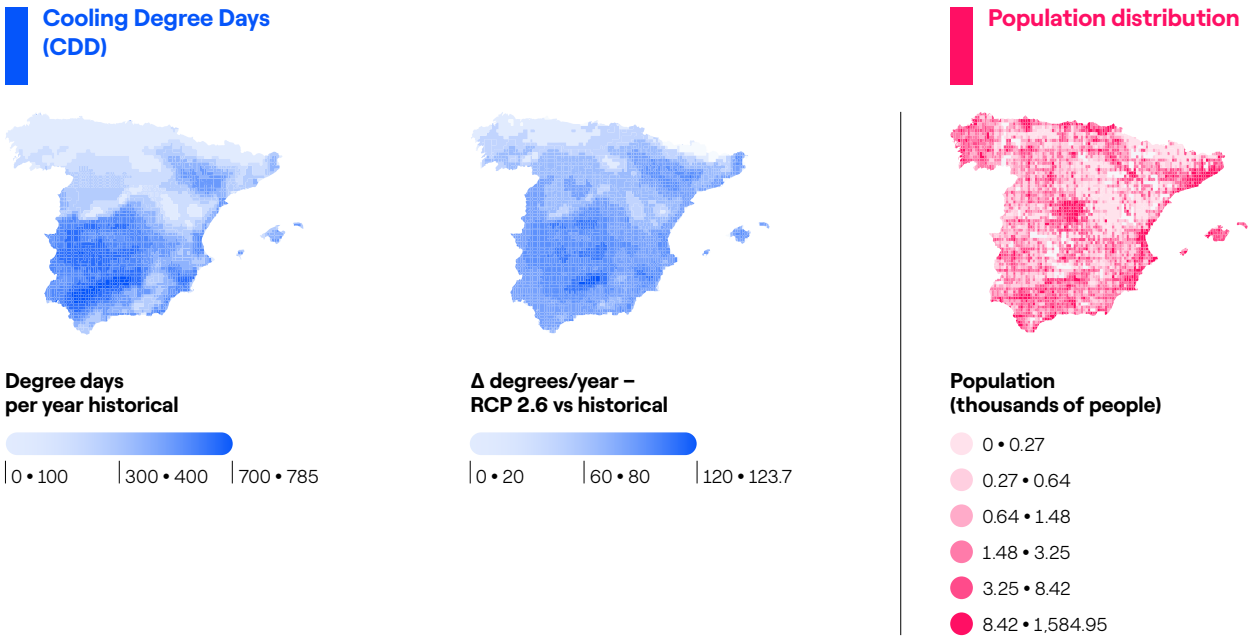


Percentage variation of acute rainfall in different CPRs (2030-2050) compared to the historical value (1990-2020).

With regard to fire risk, the area of Spain that will see the biggest increase, when compared to the historical period, in the number of days per year with Fire Weather Index greater than 45 (i.e. extreme risk) is the center-south, in all future scenarios. This increase is greater in worst-case scenarios (RCP 8.5) than in the RCP 2.6 scenario.
Heat waves, as already highlighted in the analyses published previously by the Group, will be more geographically widespread and more frequent in the period 2030-2050, especially in the southern part of the country.

Chronic phenomena: analysis of potential cooling and heating demand has been refined and updated in a similar way to that for Italy. In terms of Heating Degree Days and Cooling Degree Days, compared to the period 1990-2020, HDDs are estimated to decrease in all scenarios in the period 2030-2050, from around -10% in RCP 2.6 to -20% in RCP 8.5, and RCP 4.5 in the middle. The data also confirm an increase in CDDs (+34%) in the RCP 2.6 scenario and a change of +61% and +87% in the RCP 4.5 and RCP 8.5 scenarios, respectively.

(6) Extreme rainfall is the sum of daily rainfall above the 95th percentile of the historical distribution in a specific period.



Cooling degree days (CDD) in the historical period (1990-2020) and expected change in the RCP 2.6 scenario. The distribution of population (1990-2020) on the same grid as the climate models is shown on the right, whereby the most densely populated areas that have the biggest impact on the calculation of the country-level metric are clearly visible.

With regard to total rainfall, variations in this phenomenon in the basins of interest for the Group's hydroelectric generation were analyzed. Based on this analysis, the data do not show appreciable variations when comparing the RCP 2.6 scenario (2030-2050) and the historical period (1990-2020), with a general trend of slight decrease.

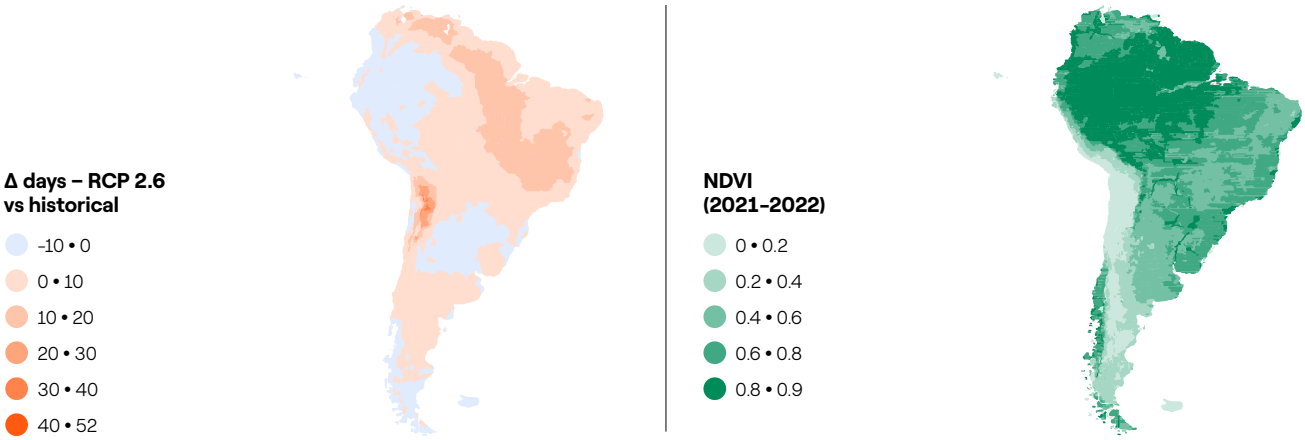
Latin America

Acute phenomena: the fire risk, measured as the number of days per year with a FWI greater than 45 (extreme risk), differs from one area to another. As the figure on the left shows, when comparing the RCP 2.6 scenario (2030-2050) with the historical period (1990-2020), there is an increased number of days at high risk of fires in most parts of Brazil and in the Atacama Desert. In the rest of South America, it stays the same or decreases a little. Interestingly, the risk of fire is particularly high in areas with the lowest current Normalized Difference Vegetation Index (NDVI) values (as shown in the figure on the right[7]), that is, in areas with sparse vegetation. Some areas of the Amazon, in the heart of Brazil, are an exception, as they show not only a sharp increase in the number of days at risk of extreme fire, but also high vegetation coverage. It is essential to combine the fire risk index and vegetation, since the latter can potentially fuel fires and increase the likelihood of fire spreading.

(7) The map in the figure on the right shows processed NASA data on the Normalized Difference Vegetation Index from June 2021 to June 2022. The NDVI quantifies vegetation by measuring the difference between near-infrared light (which is strongly reflected by vegetation) and red light (which is absorbed by vegetation). This is a good indicator of vegetation growth and density. The higher the NDVI, the denser and healthier the vegetation.

Fire Weather Index
RCP 2.6

Normalized Difference Vegetation Index



Variation in the number of average days per year with a FWI greater than 45 between the RCP 2.6 period (2030-2050) and the historical period (1990-2020) (left) and the NDVI vegetation index from June 2021 - June 2022 (right).

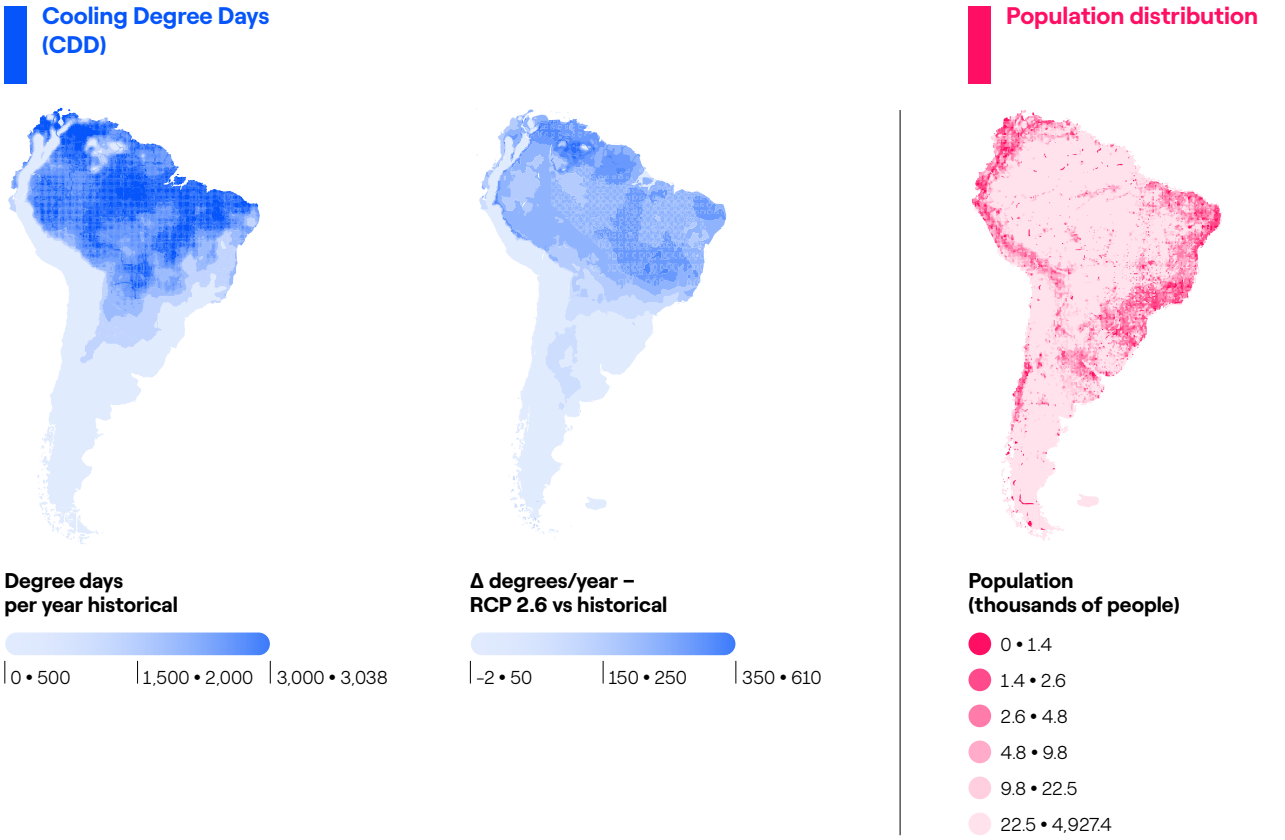
The "Warm Spell Duration Index" (WSDI) is a standard indicator that can be used to evaluate extreme temperatures.[8] Comparing the period 2030-2050 with the period 1990-2020, the data show a significant increase in days characterized by heat waves already in the RCP 2.6 scenario, especially in some areas of Brazil, Colombia, Peru and northern Chile. This increase in extreme temperatures will be even more pronounced in worst-case scenarios (RCP 8.5).

For extreme precipitation, daily rainfall above the 95th percentile was considered, similar to what was done for Italy and Spain. Future changes for this phenomenon are less homogeneous. For some areas, such as northern Brazil and northern Argentina, decreases compared to the historical reference period are expected in the RCP 2.6 scenario. On the other hand, in other areas, such as western Colombia and parts of Brazil and Peru, heavy rainfall increases are expected.

Chronic phenomena: a study was carried out on potential changes in heating and cooling demand related to chronic changes in temperature. Again, changes in Heating Degree Days and Cooling Degree Days over the period 2030-2050, compared to the period 1990-2020, were calculated from data from 6 models, with a resolution of 25 km x 25 km. Average country data were averaged over the nation, weighting each geographic node by population through the use of Shared Socioeconomic Pathways (SSPs) associated with each RCP scenario. In each country studied, CDDs increase progressively in all scenarios: in the RCP 2.6 scenario they increase by 35%[9] in Chile, while the increase is between 13% and 18% in the other countries examined. In the RCP 4.5 scenario, this increase becomes 113% for Chile and slightly more than 25% for Argentina, Brazil and Peru, while it stands at 18% for Colombia. The increase in CDDs with respect to the historical period is even more marked in the RCP 8.5 scenario. With regard to HDDs, in the RCP 2.6 scenario considerable reductions are estimated in Colombia (-52%), Brazil (-21%) and Peru (-14%), as well as a slight decrease in Chile (-5%). This trend intensifies in the RCP 4.5 scenario: ~-62% in Colombia, ~-27% in Brazil, ~-20% in Peru and -8% in Chile.

(8) The WSDI considers heat waves characterized by at least 6 consecutive days with a maximum daily temperature above the 90th percentile of the historical distribution.

(9) In Chile, the percentage increase is higher than in the other LATAM countries, since the absolute values of CDD are very low. In fact, historically, CDDs are very close to zero throughout most of the country, with a few degrees Celsius annually only in the central part of the country.



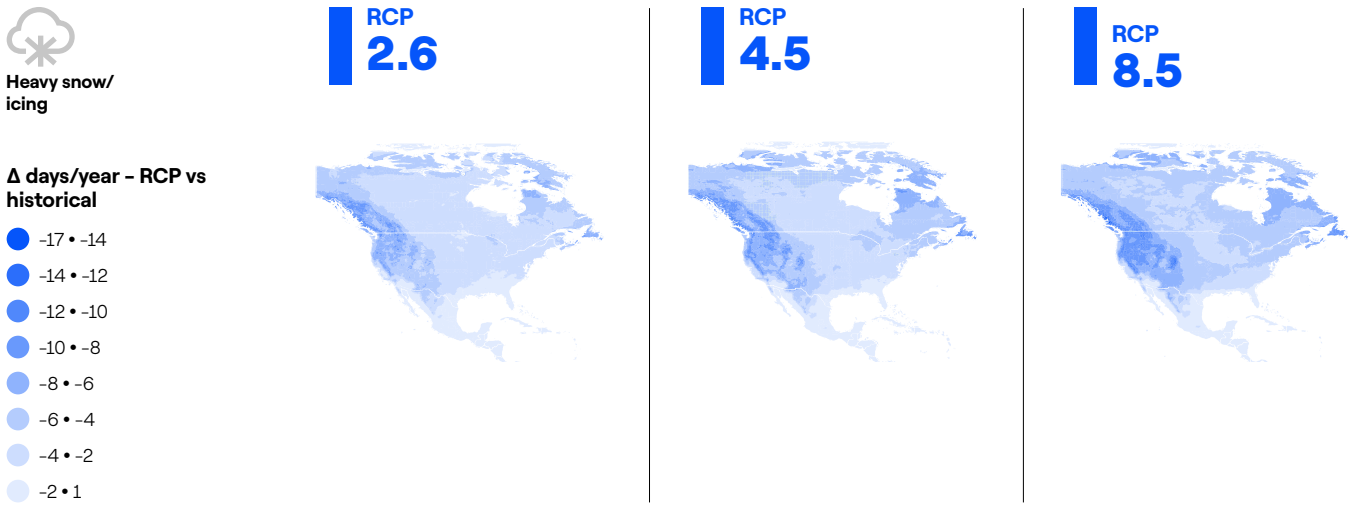
Cooling degree days (CDD) in the historical period (1990-2020) and expected change in the RCP 2.6 scenario. The distribution of population (1990-2020) on the same grid as the climate models is shown on the right, whereby the most densely populated areas that have the biggest impact on the calculation of the country-level metric are clearly visible.

With regard to total rainfall, variations in the basins of interest for the Group's hydroelectric generation were analyzed. Analyses comparing 2030-2050 projections in the three scenarios to the historical period 1990-2009 show a trend of rainfall reductions in Argentina and Colombia. A slight increase or decrease in total rainfall is expected for the RCP 2.6 scenario in Brazil, based on the group of basins in question. In contrast, in Peru, rainfall will basically stay the same in the RCP 2.6 scenario. Ultimately, in Chile, as in Argentina and Colombia, total rainfall is expected to decrease in the lowest-emission scenario, but this decrease may have already taken place over the last few years (as it is already decreasing compared to historical levels).

North and Central America

Acute phenomena: first of all, the variation of frost days, that is, the average number of frost days per year,[10] was analyzed for North America and Central America in several future scenarios (2030-2050) compared to the historical period (1990-2020). As shown in the maps in the following figure, the number of frost days will decrease mainly in the western part of the macro-region, with major variations in terms of magnitude in worst-case RCP scenarios. It is important to stress the fact that the decrease in frequency does not mean that the intensity of this acute phenomenon has increased, which is a topic that the Group is currently looking into.

(10) For the sake of accuracy, frost days are the number of days per year when the minimum temperature Tmin is lower than 0 °C.

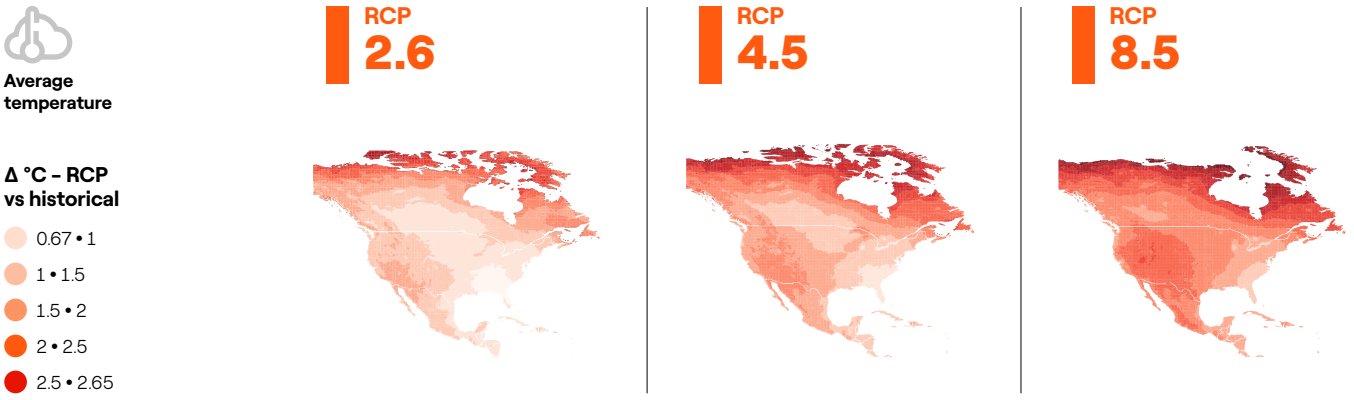


Variation in the average number of frost days per year between the various RCP scenarios (2030-2050) and the model history (1990-2020).

With regard to heat waves, as in the case of South America, the WSDI was studied. When comparing the 2030-2050 period with the historical period 1990-2020, we can expect a significant increase in the number of days characterized by heat waves as early as the RCP 2.6 scenario, especially in Central America and along the west coast of North America. This increase in the WSDI will be even more pronounced in the RCP 8.5 scenario.
The number of days in a year with a high fire risk, namely with a FWI greater than 45, is basically the same across most of the macro-region in the RCP 2.6 scenario (2030-2050) compared to the historical period (1990-2020). In the western part of the US and Mexico, instead, the number of high-risk days is expected to increase, becoming increasingly higher in the worst-case scenario.

Furthermore, acute precipitation is expected to increase in nearly all of North America in the RCP 2.6 scenario compared to the historical period. It is important to highlight the fact that the magnitude of such increases varies from one area to another. Also in the RCP 2.6 scenario, in Central America, heavy rainfall will decrease in the central part of the region. In other areas it will remain the same or will slightly increase.

Chronic phenomena: as shown in the figure below, the average annual temperature increases in all future scenarios (2030-2050) compared to the historical period (1990-2020). On the whole, the increases are greater in the RCP 8.5 scenario than in the RCP 2.6 one. In all RCP scenarios, the regions that will get warmer are the ones located in the far north.



Average temperature variation between the various RCP scenarios (2030-2050) and the model history (1990-2020).

By comparing the various RCP scenarios (2030-2050) and the model history (1990-2020), the expected total annual rainfall tends to decrease in Central America, while in North America it will remain the same or will increase depending on the area.

For further information, please read the 2022 Integrated Annual Report.

The strategy to tackle climate change

3-3 | 201-2 | TCFD: Strategy

Enel's efforts to fight against climate change are one of the key pillars of the Group's strategy in the short and long term. On the one hand, Enel plays its part in driving the global energy transition towards a zero-emission model as a **mitigation** lever and, on the other hand, by setting up the best **adaptation** measures in order to adapt to changes that will eventually take place, in greater or lesser frequency and intensity.

Mitigation includes all initiatives intended to minimize the direct and indirect impact of the Group's activities on climate change, that is, first and foremost, all measures taken to reduce greenhouse gas emissions.

Adaptation, instead, includes all the initiatives that Enel intends to implement so as to make its assets more resilient, increase its capacity to react to extreme climatic events, and come up with strategic options and business models that will address various needs as the climate changes.

In each of these two areas, there are challenges but also opportunities that the Group is aiming to seize through its strategy. According to Enel's vision, adapting to climate change also entails exploring new business opportunities associated with the changed environment, developing new technologies and creating value from acquired skills.

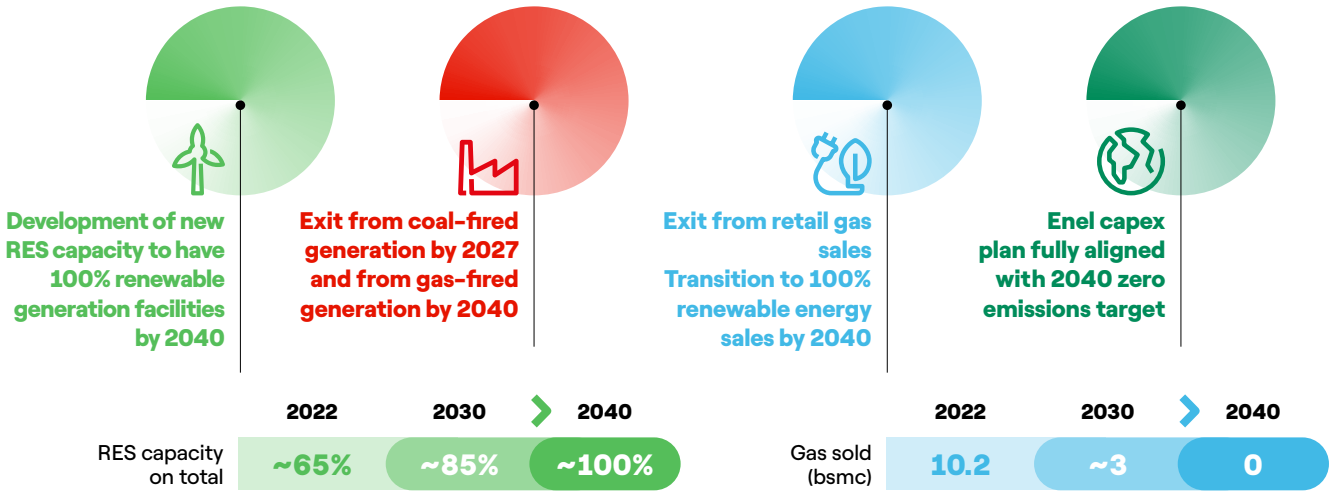
The impact of climate change can also be mitigated by researching breakthrough technologies that allow for a greener economy by design or which, for example, simply improve performance and circularity.

Medium and long-term strategy

The Group's decarbonization strategy, combined with its drive toward electrification, once again reaffirms its commitment to achieving zero emissions by 2040. In this respect, goals have also been set with regard to both direct and indirect emissions throughout the Group's value chain.

Specifically, the strategy is based on:

- **the decarbonization of the generation mix**, by progressively developing renewable energy while ceasing to produce electricity from thermal power sources;
- **the electrification of final energy consumption**, by promoting new products and services for customers while gradually exiting the business of gas sales to end consumers (to be completed by 2040);
- **the digitalization and upgrade of distribution network**, so as to tackle the ongoing energy transition and ensure service quality for customers.



Energy mix decarbonization:

Enel expects to reach about 85% of its installed capacity from renewable sources by 2030, compared to around 65% in 2022, also considering the managed and not consolidated capacity (63.3%, considering only the consolidated capacity). In addition, it promotes a gradual reduction in the share of thermoelectric capacity in its energy mix, aiming to phase out coal-fired generation by 2027 and gas by 2040, thus achieving a 100% renewable, zero-emission energy mix by 2040.

Electrification:

Electric mobility is one of the top priorities in the field of electrification. Expanding the electric vehicle charging infrastructure is one of the prerequisites for achieving widespread use of electric cars and is therefore absolutely essential for the transition to zero-emission mobility. Enel X Way shares the same goal and is currently expanding its charging network even further, with the aim of having more than 4 million charging points by 2030.
Another key aspect is the electrification of residential consumption, which Enel will be encouraging by promoting heat pumps for domestic heating and induction cooktops in kitchens, resulting in an increased electrification rate of Enel's customers from 17% today to around 20% in 2025 and 30% in 2030. This will allow them to reduce their total energy expenditure by 5% by 2025 and by around 20% by 2030, as well as their carbon footprint by 2030 as a result of a reduction in gas sales from approximately 10 bcm today to around 3 bcm in 2030, and then down to zero in 2040.

Distribution grids:

Moreover, Enel will support electrification also by investing in infrastructure, since grids are the key enablers of the energy transition. Out of the total amount to be invested in grids over the next few years, an increasingly large portion will be spent on expanding the number of connections with new users and on increasing the flexibility and capacity of the grid so that it can handle a growing share of distributed generation. Smart grids, clean energy, and energy efficiency are accessible to Enel customers through new features in each smart meter. The Group has already installed 46 million electronic meters to date and expects to reach 80 million units by 2030.

Short-term strategy - Investment Plan 2023-2025

The Group's investments in 2023-2025, totaling approximately 37 billion euros, will be primarily aimed at promoting **an integrated industrial supply chain to achieve sustainable electrification**, which is becoming more and more necessary in global energy systems. This will involve supplying around 90% of fixed-price sales in "*core*" countries (Italy, Spain, the United States, Chile, Brazil and Colombia) with carbon-free electricity in 2025 (compared to 70% in 2022), increasing generation from renewable sources to about 75% of the total, as well as achieving a digitalization rate of grid customers of around 80%. Specifically:

- The Group intends to add around 21 GW of installed renewable capacity (of which around 19 GW in "core" countries) by 2025, so it is well on track to meet its decarbonization targets, in line with the Paris Agreement. The Group intends to develop this renewable capacity through a market-leading pipeline of around 455 GW. Ultimately, the Group is planning to reduce installed thermoelectric capacity by 42% in 2025 (16 GW) compared to 2022 values (27.7 GW).

- As for **end customers**, it plans to accelerate the provision of value-added services and the implementation of a state-of-the-art infrastructure over the next three years, in particular:
  - charging points for electric vehicles (from approximately 0.3 million in 2022 to approximately 1.4 million in 2025);
  - behind-the-meter storage systems (from around 75 MW in 2022 to around 352 MW in 2025);
  - demand response (from around 8.5 GW estimated in 2022 to around 12.4 GW in 2025).

- As for **the grids**, the Group is planning to invest approximately 15 billion euros in the 2023-2025 period, mostly in Europe (more than 80% of investments), since the Group now has a more geographically balanced presence and the regulatory frameworks are favorable, so as to promote the role of grids as enablers of the energy transition and as a driving force in the fight against climate change.

By adopting the **Stewardship business model**, Enel will also be mobilizing Group and third-party investments worth a total of approximately 15 billion euros. Such resources are instrumental in adding new generation from renewable sources, as well as a new infrastructure and services to accelerate the electrification process for the Group's customers.

Around 94% of the Group's total investments in 2023-2025 are in line with the United Nations Sustainable Development Goals ("SDGs"), directly pursuing SDGs 7 ("Affordable and clean energy"), 9 ("Industry, innovation and infrastructure") and 11 ("Sustainable cities and communities"), all of which are functional to SDG 13 ("Climate action"). The investments envisaged in the Group's Strategic Plan are in line with the decarbonization and greenhouse gas reduction targets, based on a specific methodology whereby investments made in renewables and retail power inherently fall under SDG 7, investments in the distribution network fall under SDG 9, and investments in Enel X are related to SDG 11. Therefore, the 94% referred to above does not include investments in conventional generation (including investments in maintenance) and in retail gas.

In addition, over 80% of the Group's investments in the 2023-2025 period will be aligned with the EU Taxonomy criteria due to their substantial contribution to climate change mitigation.

Risks and opportunities connected with climate change

3-3 | 201-2 | TCFD: Strategy and Risk Management

The process for defining the Group's strategy is accompanied by a careful analysis of the risks and opportunities connected to it, also including the aspects related to climate change. Every year, before the Board of Directors examines the Strategic Plan, the Control and Risk Committee is presented with a quantitative analysis of the risks and opportunities related to the Group's strategic positioning, which includes aspects related to the climate, such as regulatory factors and weather and climate phenomena.

In order to facilitate the proper identification and management of risks and opportunities related to climate change, a **Group policy** was published in 2021 that describes common guidelines for assessing the risks and opportunities arising from climate change. The "Climate change risks and opportunities" policy defines a shared approach for the integration of climate change and energy transition issues into the Group's processes and activities, thus informing industrial and strategic choices to improve business resilience and long-term sustainable value creation, consistent with the adaptation and mitigation strategy. The main steps considered in the policy are as follows:

- **prioritizing phenomena and scenario analysis**. These activities include the identification of physical and transition phenomena relevant to the Group and the consequent development of scenarios to be considered and developed through analysis and processing of data from internal and external sources. Functions can be developed for the phenomena identified that link the scenarios (e.g. data on the change in renewables) to business operations (e.g. the change in potential output);
- **impact assessment**. Includes all analyses and activities necessary to quantify the effects at the operational, economic and financial levels, depending on the processes into which these are integrated (e.g. design of new constructions or operational performance appraisal, etc.);
- **operational and strategic actions**. Information from previous activities is integrated into processes, informing Group decisions and business activities. Examples of activities and processes that benefit are capital allocation, e.g. for evaluating investments on existing assets or new projects; defining resilience plans, risk management and financing activities and engineering and business development activities.

In order to identify the main types of risk and opportunity and their impact on the business associated with them in a structured manner consistent with the TCFD, we have adopted a **framework** that explicitly represents the main relationships between scenario variables and types of risk and opportunity, specifying the strategic and operational approaches to managing them, comprising mitigation and adaptation measures. Two main macro-categories of risks/opportunities are identified:

- those connected with developments in physical variables;
- those connected to the evolution of the transition scenarios.

The physical risks are divided into acute (or extreme events) and chronic: the former are linked to extremely intense weather-climatic conditions, while the latter are linked to gradual and enduring changes in climatic conditions.

Extreme events expose the Group to: potential unavailability of assets and infrastructure for longer or shorter periods of time, service restoration costs, inconvenience for customers, etc. Chronic changes in climatic conditions, on the other hand, expose the Group to other risks or opportunities: for example, structural temperature changes can impact electricity demand and affect generation, while changes in rainfall or wind patterns could impact the Group's business in terms of lower or higher output. Generally speaking, adapting to the changes that will most likely take place in the future also leads to efforts in innovation and strategic positioning: it may be possible to develop new businesses and better products in order to live sustainably in a changed environment.

With regard to the energy transition process, marked by a progressive reduction in CO_2 emissions, there are risks and opportunities associated with the changing regulatory and legislative context, with trends in technological and competitive development, with electrification and behavior, and with the resulting market trends.

In line with the climate and transition scenarios that Enel has used to define risks and opportunities, it appears that the main phenomena related to the transition are now becoming evident depending on the behavior adopted by customers, the industrial strategies adopted by various sectors of the economy and regulatory policies, including fiscal policies. By the year 2030, transition trends will be observable as the context evolves: the Enel Group has decided to lead and pave the way for the transition, and is prepared to seize any associated opportunities. As previously mentioned, strategic choices that focus strongly on energy transition, with more than 90% of investments being dedicated to improving some of the SDGs, make it possible to adopt risk mitigation "by design" and to maximize opportunities by maintaining a position that takes into consideration the identified medium and long-term phenomena. Strategic choices go hand in hand with the operational best practices implemented by the Group.

Framework of main risks and opportunities

Scenario phenomena	Time horizon	Risk & opportunity driver	Description	Management approach
Acute physical	Starting with short term (1-3 years)	Extreme events	**Risk**: especially extreme weather/climate events, which can damage assets and interrupt operations.	The Group adopts best practices to manage the restoration of service as quickly as possible. We also work to implement investments in resilience (e.g., the Italian case). With regard to risk assessment in insurance, the Group has a loss prevention program for property risk that also assesses the main exposures to natural events, supported by preventive maintenance activities and internal risk management policies. Looking forward, the assessments will also include the potential impacts of long-term trends in the most significant climate variables.
Chronic physical	Starting with long term (2030-2050)	Market	**Risk/opportunity**: increase or decrease in electricity demand under influence of temperature, whose variations can impact the business. Increase or decrease in renewables output, which may be affected by structural changes in resource availability.	The Group's geographical and technological diversification means that the impact of changes (positive and negative) in a single variable is mitigated at the global level. In order to ensure that operations always take account of weather and climate phenomena, the Group adopts a range of practices such as, for example, weather forecasting, real-time monitoring of plants and long-term climate scenarios to identify any chronic changes in renewable source availability.
Transition	Starting with short term (1-3 years)	Policy & Regulation	**Risk/opportunity**: policies on CO_2 prices and emissions, energy transition incentives and policies, revision of market design and permitting procedures, and resilience regulation.	The Group is minimizing its exposure to risks through progressive decarbonization and the focus of the business on renewables, grids and customers. The business model is designed to maximize the benefits of our integrated position in the core countries and leveraging stewardship activities, which enables us to exploit the opportunities connected with the energy transition. The Group is also actively contributing to the formation of public policies through its advocacy efforts. These activities are conducted within platforms for dialogue with stakeholders that explore ambitious national decarbonization scenarios in the various countries in which Enel operates.
Transition	Starting with medium term (2022-2030)	Market	**Risk/opportunity**: changes in the prices of commodities and energy, evolution of energy mix, changes in retail consumption, changes in competitive environment.	The Group is maximizing opportunities by adopting a strategy founded on the energy transition, focusing on the electrification of energy consumption and the development of renewables and a geographical positioning in countries in which we have an integrated presence. Considering alternative transition scenarios, the Group assesses the impact of different commodity price trends, changes in the share of renewables in the generation mix and the electrification of final consumption.
Transition	Starting with medium term (2022-2030)	Product and Services	**Opportunity**: increase in margins and greater scope for investment as a consequence of the transition in terms of greater penetration of electrical mobility, distributed generation and new technologies for the direct and indirect electrification of final consumption.	The Group is maximizing opportunities thanks to its strong positioning in new businesses and beyond-commodity services. In addition, considering alternative transition scenarios, the Group assesses the impact of different trends in the electrification of consumption.
	Starting with medium term (2022-2030)	Technology		The Group is maximizing opportunities thanks to its strong strategic positioning in new businesses and global grids. With the penetration of direct and indirect electrification technologies, considering alternative scenarios, the Group assesses the potential opportunities for scaling existing and potential businesses and for the development of new solutions linked to digitalization and resilience of power grids.

The framework outlined above also highlights the relationships that link the physical and transition scenarios with the potential impact on the Group's business. These effects can be assessed over three time horizons: the short-medium term (1-3 years), in which sensitivity analyses based on the Strategic Plan presented to investors in 2022 can be performed; medium-term (until 2029), in which it is possible to assess the effects of the energy transition; and long-term (2030-2050), in which chronic structural changes in the climate should begin to emerge.

The following will describe the main sources of risks and opportunities identified, operational best practices for managing weather and climate phenomena, and qualitative and quantitative impact assessments conducted to date. All of the above activities are performed throughout the year through an ongoing effort to analyze, evaluate and manage the information processed. As TCFD states, the process of disclosing risks and opportunities related to climate change will be gradual and incremental from year to year.

Transition phenomena: business effects, risks and opportunities

As regards the risks and opportunities associated with transition variables, we consider the different reference scenarios in combination with the elements that make up the risk identification process (e.g. competitive context, long-term vision of the industry, materiality analysis, technological evolution etc.) to identify the drivers of potential risks and opportunities, with priority on events with greater relevancy. The main identified risks and opportunities are described below.

Policy and Regulation

- **Limits on emissions and carbon pricing**: the enactment of laws and regulations that introduce more stringent emissions limits by government action (non-market driven) and market-based mechanisms.
  - **Opportunities**: Command & Control regulations and market-based mechanisms strengthening CO_2 price signals to foster investment in carbon-free technologies.
  - **Risks**: lack of a coordinated approach among the various actors and policy-makers involved and limited effectiveness of the policy instruments deployed, with an impact on the speed of the trend toward electrification and decarbonization in the various sectors, compared with a decisive group strategy focused on the energy transition.

- **Policies and regulation to accelerate the energy transition and energy security**: introducing policies, regulatory frameworks and market design revisions that promote the energy transition, consequently guiding the energy system toward the use of renewable energy sources as the mainstream approach in the energy mixes of countries, greater consumer electrification, energy efficiency, flexibility of the electrical system and upgrading of infrastructure.
  - **Opportunities**: creating a more favorable framework for investing in renewables, also through the development of long-term markets (PPAs, CfDs), electrical technologies and distribution networks in line with the Group's strategy.
  - **Risks**: lengthy administrative authorization processes and ineffective market design and regulatory frameworks in core countries can lead to reduced asset profitability and limited opportunities for growth.

- **Resilience regulation and adaptation**: improvement of standards or introduction of *ad hoc* mechanisms to regulate investments in resilience in the context of the evolution of climate change.
  - **Opportunities**: benefits from investments that reduce service quality and continuity risks for the community.
  - **Risks**: in the case of especially severe extreme events with a greater-than-expected impact, there is a risk of failure to recover within an adequate timeframe and consequently a risk to Enel's reputation.

- **Financial measures for the energy transition**: developing policies and financial instruments that promote the energy transition, which should be capable of supporting an investment framework and a long-term, credible and stable positioning of policy-makers. Introduction of rules and/or public and private financial instruments (e.g. funds, mechanisms, taxonomies, benchmarks) aimed at integrating sustainability into financial markets and public finance instruments.

- **Opportunities**: the creation of new markets and sustainable finance products consistent with the investment framework, activating greater public resources for decarbonization and access to financial resources in line with energy transition objectives and the related impact on costs and on finance charges; introduction of subsidized support tools (funds and calls) for the transition.
- **Risks**: actions and instruments not sufficient to provide incentives consistent with an overall positioning tailored to the energy transition, uncertainty or slowdown in the introduction of new instruments and rules due to the deterioration in finances.

Market

- **Commodity price dynamics**: changes in market dynamics, such as those relating to commodity price volatility, may influence the behavior of traders, policy makers and customers.
  - **Opportunities**: accelerating clean electrification as a solution for cutting energy costs and limiting exposure to commodity volatility. Customers are more likely to switch from conventional fossil-fuel technologies to efficient electrical technologies.
  - **Risks**: a "disorderly" energy transition due to the introduction of potentially distortive measures.
- **Market dynamics**: end users are more likely to choose more sustainable technologies as they are more aware of climate change risks and due to greater regulatory pressure.
  - **Opportunities**: positive effects associated with the growth in electricity demand and the greater room for renewables, also thanks to an increased demand for long-term contracts (PPAs).

Technology

- **Technology penetration to support the transition**: gradual penetration of new technologies such as storage, demand response and green hydrogen; digital lever for transforming operating models and "platform" business models.
  - **Opportunities**: investments in the development of technology solutions, as well as positive impacts from increased electricity demand and increased room for renewables from green hydrogen generation.
  - **Risks**: slowdowns and interruptions to the raw materials supply chain, including metals for batteries (such as lithium, nickel and cobalt) and semiconductors, could lead to delays in procurement and/or increased costs, such as to slow down the penetration of renewables, storage and electric vehicles.

Products and services

- **Electrification of residential consumption and industrial processes**: with the gradual electrification of end uses, the penetration of products with lower costs and a smaller impact in terms of residential emissions will expand (for example, the use of heat pumps for heating and cooling).
  - **Opportunities**: increase in electrical consumption in the context of reducing energy consumption, thanks to the improved efficiency of the electric carrier. More opportunities to provide beyond commodity services and the chance of reducing the energy expenditure and carbon footprint of customers. Increasing investment in networks to drive consumer electrification.
  - **Risks**: additional competition in this market segment. This phenomenon depends on whether electricity networks are well developed, which is crucial for ensuring increasing load levels and service continuity.

- **Electric mobility**: use of more efficient and effective modes of transportation from the point of view of climate change, with a special focus on the development of electric mobility and charging infrastructure; electrification of large-scale industrial consumers.
  - **Opportunities**: positive effects of the increase in electricity demand and greater margins connected with the penetration of electric transportation and the relative beyond commodity services.
  - **Risks**: additional competition in this market segment.

The Group has already implemented strategic actions to mitigate the potential risks and exploit the opportunities associated with transition variables. Shared long-term value can be created through an industrial and financial strategy that incorporates ESG factors, with an integrated approach focusing on sustainability and innovation.
The strategy focusing on full decarbonization and energy transition enables the Group to be resilient to risks resulting from the introduction of more ambitious policies for reducing emissions. It also maximizes opportunities for developing renewable generation, infrastructure and enabling technologies, partly through geographic positioning in countries with an integrated presence and by promoting stewardship activities.

To quantify the risks and opportunities deriving from the energy transition in the long term, two transition scenarios, described in the paragraph "Energy transition scenarios". The effects of Slower Transition and Accelerated Transition scenarios have therefore been identified on the variables that can have the greatest impact on the business, in particular electricity demand, influenced by the dynamics of consumer electrification, and therefore of penetration of electrical technologies and the electricity generation mix. These considerations offer a basis for determining the Group's strategic positioning in terms of resource allocation.

Enel's reference scenario – the Paris scenario – entails a growing ambition in terms of decarbonization and energy efficiency, supported by greater electrification of final energy consumption and the development of renewable capacity. The dynamics related to the energy transition will bring increasing opportunities to the Group. In particular, in the retail electricity market, progressive electrification of final energy consumption – especially for transport and the residential sector – will lead to a considerable increase in electrical consumption to the detriment of other, more high-emissions energy carriers. Similarly, the gradual increase in the proportion of renewable energy in the energy mix is expected to lead to a reduction in the wholesale price of electricity in the medium to long term. However, this impact is limited, given that the market design based on the system marginal price is unchanged in the medium term. Possible alternative market structures could induce different effects.

In reference to the economic impacts that may result from the change in the transition scenarios, the Group has performed some analyses regarding impacts in terms of EBITDA that the Slower Transition and Accelerated Transition scenarios would bring to the 2030 results compared to the baseline Paris scenario.

With reference to consumer electrification, the Slower Transition scenario encompasses lower penetration rates of the most efficient electrical technologies, in particular electric cars and heat pumps, causing a decrease in electricity demand compared to the Paris scenario, which is estimated to cause limited impacts on the Retail commodity business & beyond. At the same time, lower electricity demand results in less development space for renewable capacity, with impacts on the generation business.

With reference to the Accelerated scenario, a more rapid reduction in the cost of green hydrogen generation technologies is assumed. This results in a higher penetration of this energy carrier, at the expense of blue and gray hydrogen, with a consequent additional effect on domestic electricity demand and renewable capacity installations compared to the Paris scenario.

For the different countries and regions, all scenarios, but to a greater extent the Paris and Accelerated scenarios, will involve a considerable increase in the complexities that will have to be managed by the grids. A significant increase is expected in fact in distributed generation and in other resources, such as storage systems, greater penetration of electric mobility with the relative charging infrastructures, as well as the increasing rate of electrification of consumption and the introduction of new actors with new methods of consumption. This context will involve a decentralization of the extraction/feed-in points, an increase in electric demand and the average requested power, a considerable variation in energy flows, which will require dynamic and flexible grid management. The Group therefore expects that in this scenario incremental investments will be necessary to guarantee the connections and suitable levels of quality and resilience, by promoting the adoption of innovative operating models. These investments must be accompanied by coherent policy and regulation scenarios to guarantee suitable economic returns for the Enel Grids Business Line.

Time horizon

Short (2022-2024)
Medium (until 2030)
Long (2030-2050)

Upside Downside

Category	Time horizon	Main drivers	Scenario	Quantification - range < €100 mn	Quantification - range €100-300 mn	Quantification - range > €300 mn	Mitigation Actions
Market	Medium	Electrification trend and unit consumption	**Accelerated**: increase in average unit consumption thanks to greater electrification. It already includes effects connected with greater efficiency. Positive impact from increased revenues, partly offset by rise in sourcing costs	●			
			Slower: decrease in average unit consumption as a result of reduced electrification. Negative impact linked to decrease in revenues, partly offset by decline in sourcing costs		●		*Adoption of measures to increase CB in order to offset negative margins*
Products and Services	Medium	Green hydrogen development scenarios	**Accelerated**: impacts connected to increased volumes associated with an expansion of indirect penetration of electrification through green hydrogen (with potential increase in growth capacity)		●		
			Slower: impacts connected to decreased volumes associated with reduction in indirect penetration of electrification through green hydrogen	●			
Products and Services	Medium	Development of electric mobility/ photovoltaics	**Accelerated**: change in margins as a function of greater penetration of EV and distributed generation	●			
			Slower: change in margins as a function of decreased penetration of EV and distributed generation		●		*Mitigation in strategy of offering "packages" of services*

Note: The estimated transition impacts are based on current coverage levels.

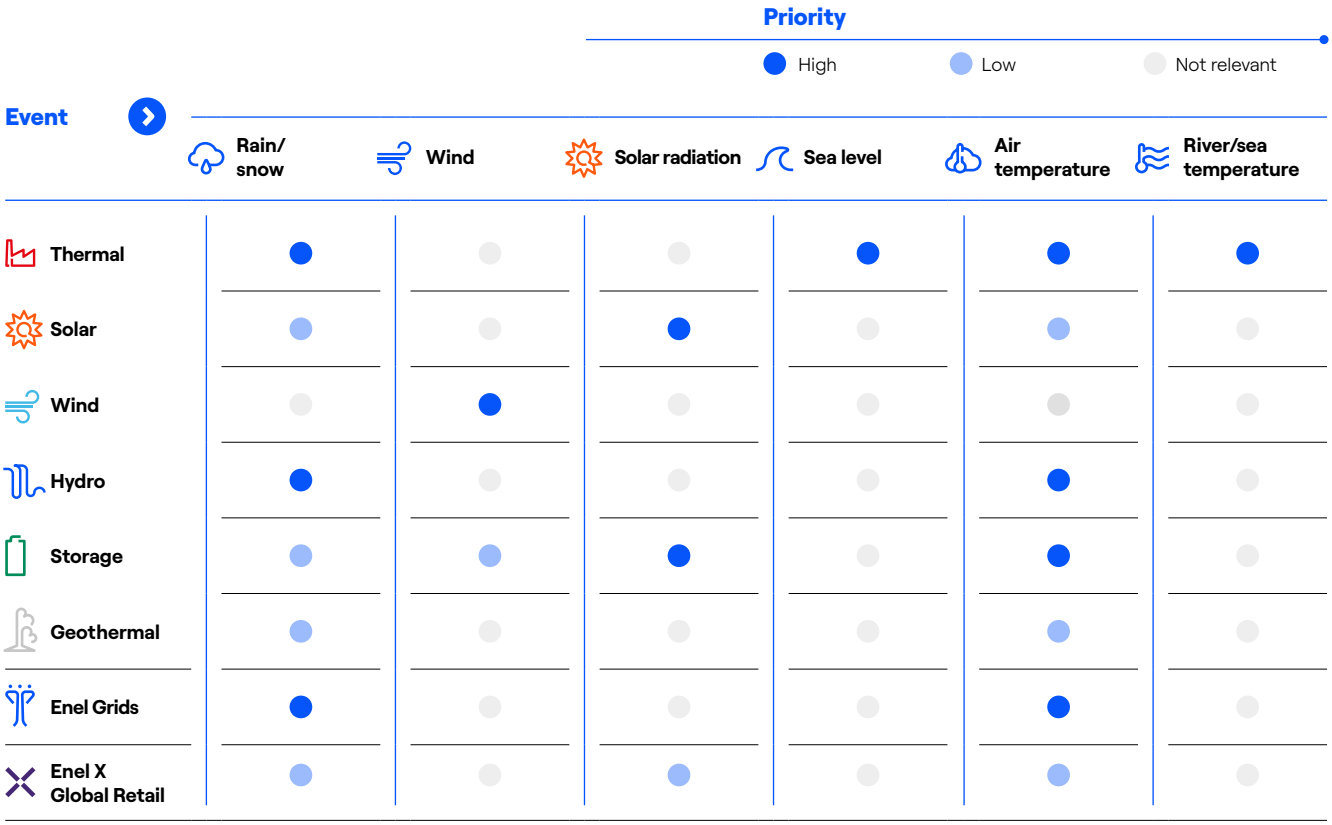
Physical phenomena: identification, assessment and management of risks and opportunities

Chronic physical risks

The climate scenarios jointly developed with the International Centre for Theoretical Physics in Trieste, Italy, do not show any certainty of structural changes before 2030, while some structural changes may begin to take place between 2030 and 2050. Basically, even though weather changes are being recorded, which are often significant, it is nevertheless difficult to determine in the short term whether certain phenomena are changing structurally, that is, whether average reference values are already changing. This can be established in the long run with probability intervals.
The main impacts of chronic physical changes can produce similar effects on the following variables:

- **electricity demand**: variation in the average temperature level with a potential increase or reduction in electricity demand;
- **thermal generation**: variation in the level and average temperatures of the oceans and rivers, with effects on thermal generation;
- **hydroelectric generation**: variation in the average level of rainfall and snowfall and temperatures with a potential increase and/or reduction in hydroelectric generation;
- **solar generation**: variation in the average level of solar radiation, temperature and rainfall with a potential increase or reduction in solar generation;
- **wind generation**: variation in the average wind level with a potential increase or reduction in wind generation.

The Group is working to estimate the relationships between changes in physical variables and the change in the potential output of individual plants in the different categories of generation technology.
As part of the assessment of the effects of long-term climate change, chronic events relevant to each technology were identified and analyses of their impacts on manufacturability were initiated.



The initial scenario analysis has shown that chronic structural changes in the recent trends of physical variables will begin to occur in a considerable manner starting from 2030. However, in order to obtain an indicative estimate of the potential impacts, and include the possibility of the early onset of chronic effects, it is possible to test sensitivity of the Industrial Plan to the factors potentially influenced by the physical scenario, regardless of any direct relationship with climate variables. The existing Industrial Plan was created based on the information contained in the average scenarios for chronic phenomena, so that the possible effects of trends in climatic variables could also be taken into consideration.

Analyses of the impact of chronic climate change on renewable generation

A number of *ad hoc* functions were created for each renewable technology (wind, solar and hydroelectric) and plant in order to calculate the impact of the chronic effects of climate change on the generation of our assets. For each variation in climate variables (such as temperature, radiation, wind speed and rainfall), these functions associate likely changes in the electrical output of the plants in our portfolio.

The first step in calibrating these "link" functions was to use the historical data of the weather-climate variables and the internal references of the observed energy output of our plant fleet. This allowed us to obtain "link" functions that meet the specific characteristics of each renewable plant and technology.

As a result, we were able to study the chronic climate impacts for possible future forecasts of climate variables (RCP 2.6, 4.5 and 8.5 scenarios).

In addition to chronic phenomena involving average structural changes, it is also important to study the volatility that is characteristic of weather and, consequently, more short-term. Information obtained from the ranges of variation of chronic trends predicted by climate scenarios was taken as input for strategic planning, as was the historical volatility of meteorological data by analyzing variations in electricity generation (TWh) over the last 10 years.

Weather and climate fluctuations can lead to adjustments, since the output of power plants feeds sourcing for selling energy to customers. This means that reductions in the amount of energy used for renewable generation may lead to sourcing imbalances, which may result in missing volumes being purchased on the market in order to drive the business strategy. On the other hand, increased generation from renewable sources may lead to reduced purchases of volumes on the market (or even more sales).

Based on the analyses conducted at each plant, which were then aggregated, it was calculated that, on average, hydroelectric generation may slightly decrease in the future (with substantial differences between sites), with average variations at country level ranging between -1% and -5% in the 2030-2050 period in the RCP 2.6 scenario compared to historical values. The average changes in wind power output will largely depend on the location of the assets, with minor variations that can be either positive or negative. Ultimately, the effects for solar technology will be mostly positive, with average increases at a country level of up to 3% in the 2030-2050 period in the RCP 2.6 scenario. Such effects, aggregated at portfolio level, highlight the fact that the geographical and technological diversification plays a role in balancing the different variations.

Acute physical risks

With regard to acute physical phenomena (extreme events), their intensity and frequency can cause significant and unexpected physical damage to assets and generate negative externalities associated with the interruption of service.

Within the scope of scenarios regarding climate change, the acute physical component continues playing an extremely important role when defining the risks to which the Group is exposed, both due to the wide geographical diversification of its asset portfolio and due to the primary importance of the renewable natural resources for the generation of electricity.

In the various cases, the acute physical phenomena such as wind storms, floods, heat waves, severe cold, etc., demonstrate a high level of intensity yet do not have a very high occurrence frequency in the short term, but, considering the medium and long-term climatic scenarios, this will increase considerably in the future.

Hence, for the reasons described above, the Group is currently managing the risk deriving from extreme events in the short term. At the same time, it is extending its methodology also to longer time periods (until 2050) according to the identified climate change scenarios (RCP 8.5, 4.5 and 2.6).

Methodology for evaluating the risk of extreme events

In order to quantify the risk deriving from extreme events, the Group refers to a consolidated methodology for analyzing the catastrophic risk used in the insurance sector and in IPCC reports[11] Through its own insurance business units and the captive insurance company Enel Insurance NV, the Group is managing the various phases connected to risks deriving from natural catastrophes: from the assessment and quantification to the corresponding coverages to minimize the impacts. The methodology applies to all extreme events that can be analyzed, such as wind storms, heat waves, tropical cyclones, floods, etc. In all of these types of natural catastrophes, however, three independent factors can be identified that are summarized below.

- The **probability of the event ("hazard")**, that is, its theoretical frequency over a specific period of time: the "return time". In other words, a catastrophic event that has a return time of 250 years, for example, implies that it can be associated with a probability of 0.4% that it will occur in a year. This information, which is necessary for assessing the frequency of the event, is then associated with its geographical distribution with respect to the various areas where portfolio assets are located.

- Therefore, for this purpose, the Group uses "hazard maps" which associate, for the various types of natural catastrophes, each geographical points on the global map with the corresponding estimate of the frequency associated with the extreme event. This information, which is organized in geo-referenced databases, is provided by global reinsurance companies, meteorological consultancy companies or academic institutions.

- The **vulnerability**, that, in percentage terms, indicates how much value is lost and/or damaged upon occurrence of the catastrophic event. In more specific terms, therefore, it is possible to refer to the damage to the material assets the impact on the continuity of generation and/or distribution of electricity, and also the provision of the electric services offered to the end user.

- The Group creates and promotes specific vulnerability analyses, especially in the case of damage to its assets, related to every technology in its portfolio: solar, wind and hydroelectric power plants, transmission and distribution networks, primary and secondary substations, etc. These analyses are then, of course, focused on the extreme events that have greater impact on the various types of technology: as a result, this defines a matrix that associates the individual natural catastrophic events with the corresponding type of asset that is impacted in a considerable manner.

- The **exposure**, which is the set of economic values in the Group portfolio that can be considerably impacted by the occurrence of natural catastrophic events. Also in this case, the scopes of the analyses are specific to the various generation technologies, for network assets and for the services to the end user.

The combination of the three factors described above (**hazard**, **vulnerability** and **exposure**) provide the fundamental element for assessing the risk deriving from extreme events. From this point of view, the Group differentiates the risk analysis with respect to the climate change scenarios, depending on the specific nature of the various associated time periods. The following table summarizes the scheme adopted for the evaluation of impacts deriving from acute physical phenomena.

Time horizon	Hazard	Vulnerability	Exposure
Short term (1-3 years)	Hazard maps based on historical data and meteorological models	Vulnerability, being related to the type of extreme event, to the specifics of the damage type and to the technical requirements of the technology under consideration, Vulnerability is essentially independent of time horizons	Group values in the short term
Long term (at 2050 and/or 2100)	Hazard maps and specific studies for different IPCC RCP climate scenarios		Long-term evolution of Group values

(11) L. Wilson, "Industrial Safety and Risk Management". University of Alberta Press.
T. Bernold. "Industrial Risk Management". Elsevier Science Ltd.
Kumamoto, H. and Henley, E. J., 1996, Probabilistic Risk Assessment And Management For Engineers And Scientists, IEEE Press, ISBN 0-7803100-47.
Nasim Uddin, Alfredo H.S. Ang. (eds.), 2012, Quantitative risk assessment (QRA) for natural hazards, American Society of Civil Engineers CDRM Monograph no. 5
UNISDR, 2011. Global Assessment Report on Disaster Risk Reduction: Revealing Risk, Redefining Development. United Nations International Strategy for Disaster Reduction. Geneva, Switzerland.
Managing the Risks of Extreme Events and Disasters to Advance Climate Change Adaptation - A Special Report of Working Groups I-II of the Intergovernmental Panel on Climate Change (IPCC). Cambridge University Press, Cambridge, UK, and New York, NY, USA.

In the case of the vulnerability of assets within the portfolio, a table for the prioritization of the impacts of the main extreme events on the different technologies has been defined in collaboration with the Group's relevant Global Business Lines:

Priority

● High ● Low ○ Not relevant

Event	Heat waves	Flooding/ heavy precipitation	Heavy snow/ icing	Hail	Windstorm	Wildfire	Lightning
Thermal	●	●	○	○	●	●	Under assessment
Solar	●	●	●	●	●	●	Under assessment
Wind	●	●	●	●	●	●	Under assessment
Hydro	●	●	●	○	●	○	●
Storage	●	●	●	●	●	●	Under assessment
Geothermal	○	○	○	○	○	●	Under assessment
Enel Grids	●	●	●	●	●	●	●
Enel X Global Retail	●	●	●	●	●	●	Under assessment

Management of risks from short-term extreme events

Over the short term (1-3 years) the Group, in addition to what was illustrated above in terms of risk assessment and quantification, will implement actions targeted toward reducing the impacts on business due to extreme catastrophic events. It is possible to distinguish two main types of actions: defining an effective insurance coverage and the various climate change adaptation activities related to preventing damage that could result from extreme events. The main components of these actions are described below and, in the case of activities related to preventing and mitigating the damage, specific reference is made to the Group's Generation and Infrastructure and Networks Global Business Lines.

Impacts of acute physical events on the Group

The Enel Group has a well-diversified portfolio in terms of technologies, country and regional distribution and asset size. Consequently, the exposure of the portfolio to natural risks is also diversified. The Group implements various risk mitigation measures which, as will be described below, include both insurance coverage and other managerial and operational actions aimed at further reducing the Company's risk profile.

Indeed, empirical evidence shows negligible repercussions of such risks, as demonstrated by data for the last 5 years. Considering the most relevant events, defined as those with a gross impact >10 million euros, the cumulative value of the gross impact amounts to ~130 million euros, which represents less than 0.06% of the Group's insured values as of 2022, or ~224 billion euros, most of which are recovered through insurance payouts.

Enel Group insurances

Every year, the Group defines global insurance programs for its business in the various countries where it operates. The two main programs, in terms of scope of coverage and volumes, are as follows:

- the **Property Program** ("Property Damage and Business Interruption Insurance Program") for material damage that can be caused to the assets and the resulting interruption in business. Therefore, in addition to the cost for the new reconstruction of the asset (or its parts), also the economic losses due to their shutdown in terms of gen-

eration and/or distribution of electricity are also remunerated according to the limits and conditions defined in the policies;

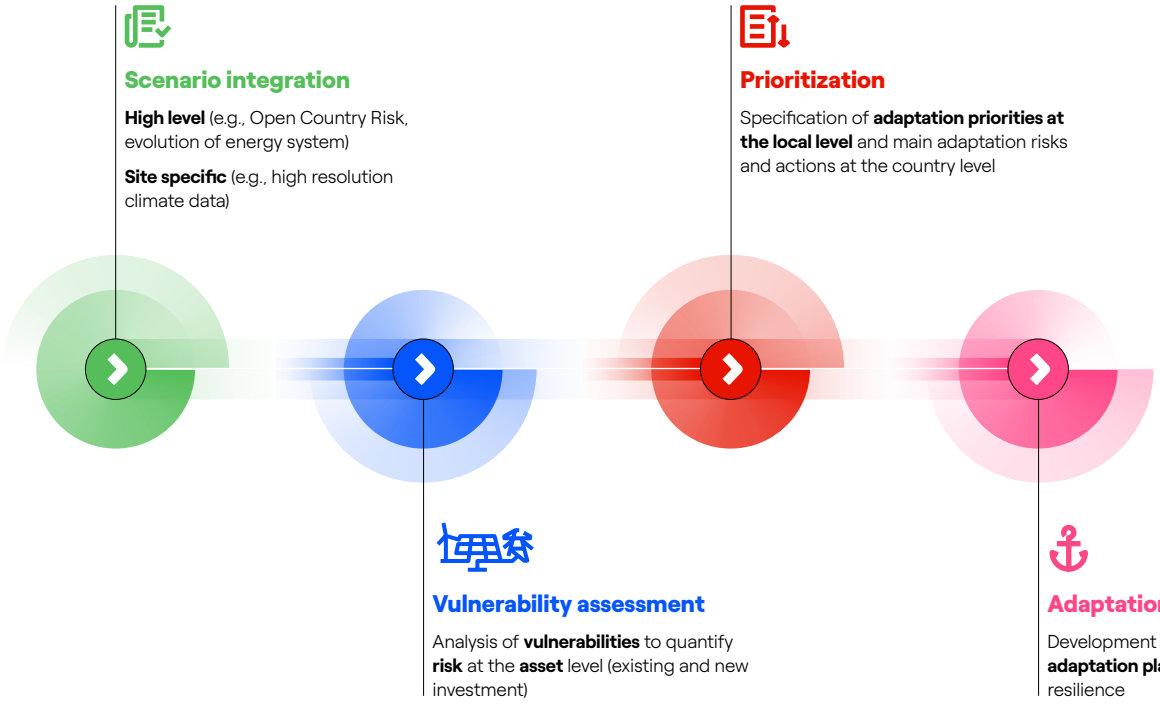
- the **Liability Program** ("General & Environmental Liability Insurance Program"), which covers third party damage following the impacts that extreme events can have on the assets and on the Group's business.

Starting from an effective assessment of the risk, suitable limits and insurance conditions can be defined in the insurance policies and this also applies in the case of natural extreme events related to climate change. In fact, in this latter case, the impacts on business can be considerable but, as shown in cases that occurred in the past and in various areas around the world, the Group has shown absolute resilience thanks to the wide insurance coverage limits, which are also the result of a solid reinsurance structure, as regards the Group's captive company Enel Insurance NV.
In this context of effective insurance coverage, the measures implemented by the Group with regard to the preventive maintenance of electricity generation and network assets are equally important. In fact, while the effects of such activities are directly reflected in the mitigation of the impacts of extreme events, they are also an essential prerequisite for optimizing risk financing and for minimizing – compared to the insurance market – the costs of global hedging programs, including the risk associated with natural catastrophic events. This adaptive strategy consists of managerial strategies and actions, not only related to insurance, which change according to boundary conditions; for instance, the Group was able to substantially reverse the sharp upward trend in premiums in insurance markets by modifying its risk retention policies for assets and by implementing internal risk transfer policies that reward better performing Business Lines when it comes to risk mitigation. From this perspective, the method and information extracted from *ex-post* event analyses play a crucial role in defining processes and practices for mitigating similar events in the future.
As part of the Property Program, Enel Insurance NV envisages a Premium Refund program for Business Lines related to the loss ratio and the achievement of the Group's SDG goals, thereby contributing to the virtuous circle linked to the Group's adaptation to the challenges posed by climate change.

For further information, please read the 2022 Integrated Annual Report.

Enel's resilience and adaptation to climate change

The application of long-term climate scenarios makes it possible to prepare adaptation plans for the Group's portfolio of assets and activities. Climate scenarios are developed by identifying the physical phenomena that are most relevant to each business (such as heat waves, extreme rainfall, fire risk, etc.) in order to produce analyses that provide not only high-level indications (such as country risk indices that can be compared with each other), which make it possible to study physical impacts at an individual site. This approach applies to both the existing portfolio and to new investments.
By assessing the vulnerability of assets, priority actions to increase resilience can be identified.



ADAPTATION: a climate-proof future

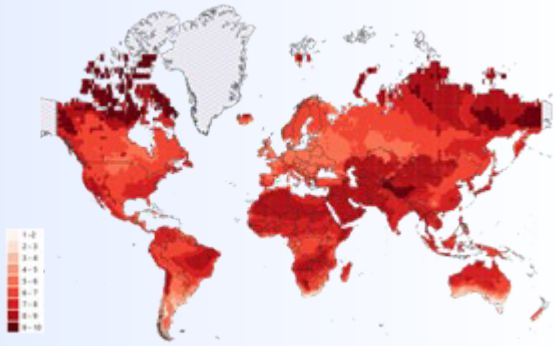
Mario Ciancarini

Group Climate Scenarios, Climate Change Adaptation Strategy – AFC Group Strategy

We are building a climate-proof company, combining mitigation efforts with the ability to understand change and deliver solutions aimed at maintaining profitability and promoting resilient growth models for the benefit of all stakeholders.

"Adaptation to climate change is only possible by taking a multidisciplinary approach. At Group Strategy, we work together and exchange views with climate change experts in order to translate the latest knowledge into useful information for the Group. Along with all business lines, we apply instruments and expertise so that we can develop solutions that will increase our resilience, our ability to deal with adverse events and to design products and services that support stakeholders' adaptation."

Climate Risk Index



Since 2018, the Group has been working with the International Center for Theoretical Physics in Trieste to define climate scenarios for the next 30 years and even longer. Since then, we have continued to develop instruments and skills in order to manage, understand and apply a huge amount of data. We now provide the Group with global climate analyses, which are based on data gathered both independently by the scientific community and through partnerships with academic and private institutions and innovation challenges. These analyses look at three different climate scenarios that cover all possible futures.

A project to define a Climate Change Adaptation Plan was launched in 2022, involving staff departments and business lines, with the aim of translating the study of complex physical phenomena and asset vulnerability into tangible actions. The goal is to increase business resilience, enhancing responsiveness to adverse events and seizing opportunities by creating products and services that will benefit customers and all stakeholders. Besides using high-resolution data and carrying out detailed analyses of individual assets, the approach that was adopted enables global climate risk to be assessed by comparing the evolution of several extreme events in the different countries.

For example, one of several results achieved in collaboration with EGP was the calculation of the expected variation in renewable output from hydroelectric, wind and solar plants between 2030 and 2050. A further example is the study, conducted with Enel Grids, which has estimated that breakdowns could potentially increase as a result of increased heat waves in Italy between 2030 and 2050. These works will continue by incorporating more and more Adaptation into all of the Group's processes so that, by working together, we can build a climate-proof future.

Adaptation activities

The Group implements solutions to climate change adaptation by taking a comprehensive approach, which involves assessing the potential impacts in order to properly target the measures required to improve the ability to respond to adverse events (Response Management) and to increase business resilience (Resiliency Measures), consequently reducing the risk of adverse events having a negative impact in the future. Moreover, the Group will use the expertise and instruments developed to analyze the effects of climate change in order to create value by devising new business options aimed at offering solutions that will make the adaptation process easier for communities and all stakeholders.
Adaptation solutions may concern both actions implemented in short-term and long-term decision making, such as the planning of investments in response to climate phenomena. Adaptation activities also include procedures, policies and best practices.
For new investments, action can also be taken early in the design and construction phase to reduce the impact of climate risks by design, for example by taking into consideration climate scenarios and analyses of the vulnerability of assets to specific phenomena in order to implement resilient solutions.

The following table shows a high-level summary that represents the type of actions that Enel implements for proper management of adverse events and to increase resilience to weather phenomena and their evolution due to climate change. Several activities are described in greater detail below.

Business Lines	A. Resiliency Measures – Enhancing asset resilience	B. Response Management – Adverse event management
Enel Green Power and Thermal Generation	**Existing assets** 1. Guidelines for hydraulic risk assessment and design 2. Lessons-learned feedback from O&M to E&C and BD **New construction** In addition to actions for existing assets: 1. Climate change risk assessments (CCRA) included in environmental impact documentation (pilot)	**Existing assets** 1. Critical incident and event management 2. Site-specific emergency management plans and procedures 3. Specific tools for forecasting imminent extreme events
Enel Grids	**Existing assets and new construction** 1. Guidelines for developing grid resilience enhancement plans (e.g., the "Network Resilience Enhancement Plan" of e-distribuzione)	**Existing assets** 1. Strategies and guidelines for Risk Prevention, Readiness, Response and Recovery actions for the distribution grid 2. Global guidelines for emergency and critical event management 3. Risk prevention and preparation measures for fires involving electrical installations (lines, transformers, etc.)
Enel X Global Retail	**Existing assets** 1. Preliminary analysis of the impacts of medium/long-term climate change	**Existing assets** 1. Enel X Critical Event Management

Generation assets resilience

With regard to generation, over time the Group has carried out targeted actions on specific sites and established *ad hoc* management activities and processes.
Actions on specific sites in recent years include, for example:

- improving cooling water management systems for certain plants in order to counter the problems caused by the decline in water levels in rivers, such as the Po in Italy.
- installing fogging systems to improve the flow of inlet air and offset the reduction in power output caused by the increase in ambient temperature in CCGTs.
- installing drainage pumps, raising embankments, periodic cleaning of canals and interventions to consolidate land adjacent to plants to prevent landslides in order to mitigate flood risks.
- periodic site-specific reassessment for the hydroelectric plants for flood scenarios using numeric simulations. The processed scenarios are managed with mitigation actions and through interventions on the civil works, dams and intake systems.

The Group adopts several best practices to properly manage the impact of weather events on electricity generation, such as:

- **weather forecasting** both to monitor renewable resource availability and detect extreme events, with warning systems to ensure the protection of people and assets;
- **hydrological simulations, territory surveys** (also using drones), **monitoring of possible vulnerabilities** using digital GIS systems (Geographic Information System) and satellite measurements;
- **advanced monitoring of more than 100,000 parameters** (with more than 160 million historical measurements) detected on dams and hydroelectric civil works;
- **real-time remote monitoring of power plants**;
- **safe rooms in areas exposed** to tornadoes and hurricanes, such as wind plants in Oklahoma, USA;
- **adoption of specific guidelines for carrying out hydrological and hydraulic studies** that are targeted, from the first development phases, toward assessing risks inside the plant and toward the external areas of the plant, with the application of the principle of hydraulic invariance during the design of the draining and mitigation works;
- **check of potential climatic trends for the main project parameters** in order to keep the dimensioning of the systems into account for relevant projects (for example: assessments of the temperature of a cold source to guarantee greater flexibility for cooling the new CCGT) and specific civil works (for example: rainfall assessments for the design of drainage systems in solar plants);
- **estimate of extreme wind speed using updated databases** containing the registers and historical trajectories of hurricanes and tropical storms, with the resulting **selection of the wind turbine technology that is best suited** to the conditions that were found.

In order to be able to promptly react to adverse events, the Group also implements dedicated emergency management procedures with real-time communication protocols, planning and management of all activities to restore operating assets in a short space of time, as well as standard checklists for assessing damage, ensuring that all plants can be put back into service as safely and quickly as possible. One way of minimizing the impacts of climate phenomena is the Lesson Learned feedback process, which is implemented by the technical departments, is governed by the existing operating model and influences future projects.

Grid assets resilience

In order to deal with extreme climatic events, in the Grids Business Line, the Enel Group has adopted **an approach called "4R"** which, in a dedicated Policy that aims to ensure an innovative strategy for the resilience of distribution networks, defines the measures to be adopted in the phase of preparation for an emergency on the network and to ensure swift restoration of services ex post, i.e. once the climatic events have caused damage to assets and/or disconnections. The 4R strategy is divided into four phases:

1. **Risk Prevention**: includes actions that make it possible to reduce the probability of losing grid elements due to an event and/or to minimize its effects, such as interventions able to increase the robustness of the infrastructure and maintenance operations. When choosing technical solutions to increase resilience, a catalogue is used to determine which is the best way to intervene for each climatic event and geographic area;
2. **Readiness**: comprises all measures that aim to improve the timeliness with which potentially critical events are identified, ensuring coordination with the Civil Protection Department and local officials, as well as to prepare the necessary resources once a grid disconnection has occurred;
3. **Response**: represents the phase for assessing the operating capacity for facing an emergency when an extreme event occurs, which is directly correlated to the ability to mobilize operating resources in the field and the possibility to perform remote controlled operations to restore service via resilient backup connections;
4. **Recovery**: the final phase which has the goal of reconnecting the grid as soon as possible with ordinary operating conditions, in the cases in which an extreme weather event cause interruptions in service in spite of the previously adopted measures for increasing resilience.

Following this approach, the Business Line has prepared various policies **on specific actions** aimed at dealing with the various aspects and risks inherent in Climate Change, in particular:

- **Policy for preparation and recovery during emergencies**: a policy related to the last 3 steps of the 4R approach which indicates the guidelines and measures targeted toward improving the preparation strategies, mitigating the impact of total interruptions and, finally, restoring service to the largest number of customers possible as quickly as possible.

- **Guidelines for the Resilience Plan of the electricity grid**: a dedicated policy has the objective of identifying the extraordinary climatic events with the greatest impact on the grid, assessing specific KPIs of the AS-IS grid and improving them on the basis of proposed actions in order to finally assess their order of priority. This makes it possible to select the actions that, when implemented, minimize the impact on the grid of particularly critical extreme events in a certain area/region. The Policy is therefore set in the first two phases of the 4R approach, suggesting measures regarding Risk Prevention and Readiness. In Italy, this Policy translates into the Resilience Plan that e-distribuzione has prepared every year

since 2017, and which represents and addendum to the Development Plan that includes ad hoc investments over a 3 year period that aim to reduce the impact of extreme events belonging to a certain critical cluster: heat waves, ice loads and wind storms (falling of tall trees). Around 672 million euros were invested in the period 2017-2021 and a further 262 million euros will also be used in the following three years, as explained in the addendum to the 2022-2024 Plan. In the face of these risks, investments have been planned such as the targeted replacement of bare conductors with insulated cable, in some cases the burying of cables, or solutions that provide re-powering routes that are not vulnerable to the above-mentioned phenomena. As in Italy, similar topics are being examined in other countries too, such as Europe and South America, so as to prepare a process for planning ad hoc investments that can increase the resilience of grids to extreme events, while taking into consideration the specific characteristics of each territory.

- **Policy on the prevention and preparation of the risk of fire for electrical installations**: a policy dedicated to fire risk defines an integrated approach to emergency management applied to forest fires, both in cases in which they are started by events exogenous to the networks and in cases, albeit rare, in which they are caused by the networks themselves and, in any case, are potentially dangerous for Enel plants. The document sets out the guidelines to be implemented in the various areas of presence so as to identify areas/plants at risk, define specific prevention measures (such as evaluating specific maintenance plans and any strengthening measures) and, in the event of a fire, to manage the emergency in the best possible way so as to limit its impact and resume the service as quickly as possible.

- **The implementation of systems for weather forecasting, grid monitoring** and assessing the impact of critical climate phenomena on the grid, preparation of operational plans and organization of special exercises. In this regard, it is particularly important to have prior agreements in place for mobilizing extraordinary resources – which are identified beforehand in order to deal with the emergency – whether internal or from contracting companies. For instance, in Italy, besides installing and putting into operation three experimental stations in order to observe and investigate the phenomenon of ice-sleeve formation on MV conductors, IoT sensor trials were conducted for monitoring overhead lines in areas that are particularly exposed to snow and wind (Newman project).

Inclusion of climate change effects in the evaluation of new projects

Many activities related to the evaluation and implementation of new projects can benefit from climate analyses, both general and site-specific, which the Group is beginning to integrate with those already considered in the evaluation of new projects. For example:

- **Preliminary studies**: in this stage, climate data can offer preliminary screening, through the analysis of specific climate phenomena, such as those shown above in the analysis of physical scenarios, and summary indicators such as the Climate Risk Index, integrated into the Open Country Risk. These data provide a preliminary measure of the most relevant phenomena in the area, among those identified as being of interest for each technology.
- **Estimation of potential output**: climate scenarios will be progressively integrated to allow for an assessment of how climate change will modify the availability of the renewable resource at the specific site. In the preliminary analysis of the impact of chronic climate change on renewable power generation, the approach applied for the moment on a few pilot sites and then scaled to the entire generation portfolio is described.
- **Environmental impact analysis**: the Group has begun to integrate the Climate Change Risk Assessment into the set of documentation produced, which contains a representation of the main physical phenomena and their expected change in the area.
- **Resilient design**: as described above, among the climate change adaptation activities, those aimed at devising resilient assets by design take on great importance. The Group is working to consider progressively analyses based on climate data, for example the increase in frequency and intensity of acute events. These will complement existing analyses based on historical data already in use, in order to increase the resilience of future assets, including any adaptation actions that may be required over the life of the project.

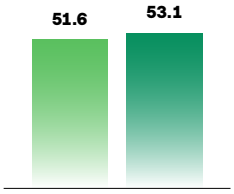
Enel's performance in fighting against climate change

| 3-3 | 305-1 | 305-2 | 305-3 | 305-4 | 305-6 | TCFD: Metrics & Targets |

Our carbon footprint

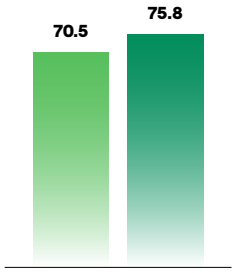
2021 2022

Total **direct GHG** emissions Scope 1 ($MtCO_{2eq}$)



Total **indirect GHG** emissions Scope 2 ($MtCO_{2eq}$)

Total **indirect GHG** emissions Scope 3 ($MtCO_{2eq}$)



Total **GHG** emissions ($MtCO_{2eq}$)

Value chain	Generation	Trading	Networks	End customers	Other
Global Business Lines					**Real Estate and others**
GHG Scope 1 direct emissions ($MtCO_{2eq}$)	**1** Generation from thermal sources: 50.71 / 52.11 **2** Other: 0.45 / 0.54		**3** SF_6 losses in the networks: 0.11 / 0.11 **4** Auxiliary motors in networks: 0.21 / 0.22		**5** Offices: 0.01 / 0.01 **6** Company fleet: 0.07 / 0.08
GHG Scope 2 indirect emissions ($MtCO_{2eq}$) (location based)	**7** Electricity purchased from the grid: 0.63 / 0.57		**7** Electricity purchased from the grid: 0.14 / 0.16 **8** Technical losses from the grid: 2.97 / 3.26		**7** Electricity purchased from the grid (offices): 0.03 / 0.03
GHG Scope 3 indirect emissions ($MtCO_{2eq}$)		**9** Upstream Fuels: 11.25 / 10.31 **10** Electricity purchased for sale: 23.96 / 28.40		**11** Sales of gas: 22.25 / 22.90	**12** Supply chain: 12.99 / 14.18 **13** Transport of other raw materials and waste: 0.00 / 0.01

GHG Scope 1 | GHG Scope 2 | GHG Scope 3

Source		Description	2021 $MtCO_{2eq}$	2022 $MtCO_{2eq}$
1	Generation from thermoelectric sources	Combustion of fossil fuels in generation activities (CCGT, Oil&Gas and coal thermal plants and Biomass).(1) This includes:		
		• CO_2 emissions	50.56	51.93
		• CH_4 (GWP=28) and N_2O emissions (GWP=265)	0.16	0.18
2	Other	CO_2, CH_4, N_2O emissions from fossil fuel use in auxiliary engines in nuclear and renewable plants	0.03	0.02
		NF_3 losses (GWP=16,100) in solar panel generation activity(2)	0.00	0.00
		SF_6 losses (GWP=23,500) in insulation systems of power plants	0.03	0.04
		Use of refrigerant gases Fgas and ODS in thermal and hydroelectric plants	0.01	0.01
		CH_4 leakages in gas-fired thermal power plants(3)	0.00	0.01
		CH_4 biogenic emissions from hydroelectric basins	0.32	0.32
		CO_2, CH_4, N_2O emissions from transport of fuels (LNG and coal) on vessels under own operational control	0.06	0.15
3	SF_6 losses in the networks	SF_6 losses (GWP=23,500) in insulating systems for power distribution activities	0.11	0.11
4	Auxiliary motors in networks	CO_2, CH_4, N_2O emissions of fossil fuel use in auxiliary engines in network assets	0.21	0.22
5	Offices	CO_2, CH_4, N_2O emissions from diesel and natural gas combustion for heating systems and canteens in offices, including all properties in all Business Lines and Group offices	0.01	0.01
6	Company fleet	CO_2, CH_4, N_2O emissions from diesel and gasoline combustion in company fleet vehicles	0.07	0.08
7	Electricity purchased from the grid for consumption(4)	GHG emissions from consumption of electricity purchased from the grid (location based):		
		• In energy power plants (including 3SUN Factory, mines and port terminals)	0.63	0.57
		• In power distribution substations	0.14	0.16
		• Civil uses in the premises (computers, lighting, heating) and in the commercial offices (Market and Enel X)	0.03	0.03
8	Technical losses from the grid	GHG emissions from energy dissipation by distribution network losses under Enel's operational control (location based)	2.97	3.26
9	Upstream Fuels (Category 3)(5)	Emissions of CO_2, CH_4 and N_2O from the extraction and transport of fuels used in thermal power plants:		
		• Coal	1.24	1.88
		• Gas	10.01	8.42
		• Diesel & fuel oil	0.01	0.01
10	Electricity purchased for sale (Category 3)(5)	Emissions for the generation of electricity purchased and sold to end customers (retail market, $MtCO_{2eq}$ in 2022 and 2021, respectively)	23.96	28.40
11	Gas sales (Category 11)(4)	Emissions from the use of gas sold to end customers (retail market)	22.25	22.90
12	Supply chain(5) (6) (7)	GHG emissions from the supply chain, related to the production of goods and services purchased from suppliers	12.99	14.18
13	Transport of other raw materials and waste (Category 4)(5) (8)	GHG emissions from road transport of other fuels, raw materials and waste	0.00	0.01

● GHG source considered in SBTi target on Scope 1 GHG emission intensity relating to power generation.
● GHG source considered in the SBTi target on the intensity of GHG Scope 1 and 3 emissions relating to Integrated Power.
● GHG source considered in the SBTi target on absolute Scope 3 GHG emissions relating to Retail Gas.
● GHG source considered in SBTi target on absolute additional GHG emissions Scope 1, 2 and 3.
● GHG source excluded from SBTi targets boundary.

(1) Following the guidance of the GHG Protocol, CO_2 emissions from biomass, which amounted to 114,838 tCO_2 in 2022 (125,878 tCO_2 in 2021), were not included as they cannot be considered within Scope 1, while CH_4 and N_2O emissions were considered.
(2) NF_3 losses were 14 tCO_{2eq} in 2021 and 4 tCO_{2eq} in 2022.
(3) CH_4 leakage in gas-fired thermal power plants was 3,255 tCO_{2eq} in 2021 and 6,754 tCO_{2eq} in 2022.
(4) 2021 figure restated following the introduction of a new method for calculating GHG emissions from pumping systems.
(5) Scope 3 categories according to the GHG Protocol.
(6) 2021 figure restated following the implementation of a new, more precise methodology for calculating indirect emissions related to work performed in the power distribution business.
(7) 29% of 2022 emissions contribute to the target on absolute additional GHG Scope 1, 2 and 3 emissions in 2030 and 43% in 2040 (these percentages cannot be added together).
(8) GHG emissions from transport of other fuels, raw materials and waste on wheels are 4,032 tCO_{2eq} in 2021 and 9,842 tCO_{2eq} in 2022.

The calculation of Scope 1, 2 and 3 emissions covers all greenhouse gases (CO_2, CH_4, N_2O, HFCs, PFCs, SF_6, NF_3), depending on the type of emission source.
In 2022, Enel's carbon footprint was 132.9 $MtCO_{2eq}$ (up from 2021 by 6%), broken down as follows:

- **Scope 1**: 53.1 $MtCO_{2eq}$, representing 40% of total GHG emissions (98.2% of these emissions of CO_2, CH_4 and N_2O result from the combustion of fossil fuels in thermal power plants for electricity generation). Despite the positive impact of the sales of gas-fired plants in Russia and the closure of coal-fired plants in Chile, there was a 3% increase in direct emissions compared to 2021, due to an increase in coal-fired electricity generation in Europe of about 7 TWh (61.5% increase compared to 2021) as a result of the current geopolitical environment and various weather factors, including a reduction in gas availability and an increase in drought, which limited hydroelectric generation in Europe (7 TWh less compared to 2021, a 31% reduction). The percentage of emissions related to EU-ETS is 66.8% of the total Scope 1 (compared to 61.5% in 2021) and the percentage of emissions related to the green tax system in Chile (Sistema de Impuestos Verdes) accounted for 9.0%.

- **Scope 2**: 4.0 $MtCO_{2eq}$ accounting for 3% of the total GHG emissions. Despite the 6% reduction in scope 2 emissions from energy consumption in 2022 compared to 2021 due to a reduction of 9% of the energy consumption in 2022 (from 3.6 TWh to 3.2 TWh), there has been a 7% increase in overall Scope 2 emissions compared to 2021, due to the worsening of the emission factors of the electricity systems in some countries where Enel distributes energy, including Italy, Romania, Chile and Brazil, with a negative impact on indirect emissions related to technical grid losses, which have a weight of 81% in Scope 2.

- **Scope 3**: 75.8 Mt CO_{2eq} accounting for 57% of total GHG emissions. There has been an 8% increase over 2021 as a result of:
  - a 9% increase in indirect emissions from suppliers (from 13.0 $MtCO_{2eq}$ to 14.2 $MtCO_{2eq}$), due to a 19% increase in the volumes (measured in euro) of products, services and works ordered, although the ratio of greenhouse gas emissions to volumes ordered improved by 8% due to the circularity approach in procurement (from 968 tCO_{2eq}/€ to 889 tCO_{2eq}/€);
  - a 19% increase in indirect emissions from the purchase of energy for sale to end customers (from 24.0 $MtCO_{2eq}$ to 28.4 $MtCO_{2eq}$), mainly due to the worsening of the emission factors of the electricity systems in which Enel purchases electricity in the wholesale market;
  - a 52% increase in indirect emissions from the coal mining and transport process for thermal power plants (from 1.2 $MtCO_{2eq}$ to 1.9 $MtCO_{2eq}$), due to the geopolitical context and the drought period in Europe. In spite of this, indirect emissions related to the process of extracting and transporting gas for thermal power plants and end customers decreased by 16% in 2022 compared to the previous year (from 10.0 $MtCO_{2eq}$ to 8.4 $MtCO_{2eq}$).

CO_2 emissions from biomass combustion, not included in Scope 1, were 114,838 tCO_2 in 2022, down 9% from 2021.

In 2022, the trend in intensity metrics compared to 2021 was as follows:

Intensity metric	2021 (gCO_{2eq}/kWh)	2022 (gCO_{2eq}/kWh)	Var. %	
CO_2 emissions intensity relating to power generation	222	225	1.4%	Metric considered for the 2020-2022 long-term incentive program. Takes into account CO_2 emissions relating to power generation, excluding other greenhouse gases. The target set in 2022 of 220 gCO_2/kWh was not reached due to the following exogenous factors related to the geopolitical context: • non-authorization of the closure of the As Pontes coal-fired plant (Spain), requested in 2019 for 2021; • three-month delay in authorizing the closure of the Bocamina coal-fired plant (Chile). The sterilization of these exogenous effects leads to a result of 220 gCO_2/kWh.
Scope 1 GHG emissions Intensity relating to Power Generation	225	229	1.8%	Metric considered in the Sustainability-Linked Financing Framework. It considers Scope 1 emissions relating to power generation (including heat), including CO_2, CH_4 and N_2O, and excluding pumped storage power generation. The increase compared to 2021 is mainly due to higher coal production in Europe following the drought period (particularly in Italy) and the geopolitical context.
Scope 1 and 3 GHG emissions Intensity relating to Integrated Power	203	218	7.4%	Metric considered in the Sustainability-Linked Financing Framework. It is calculated as the combination of the Group's direct GHG emissions (Scope 1, including CO_2, CH_4 and N_2O) from power generation and the Group's indirect GHG emissions (Scope 3) from generation of electricity purchased and sold to end customers, divided by power generation (including heat and excluding pumped storage generation) and purchase of electricity. In addition to the exogenous factors already indicated in the previous metrics on direct emissions, the increase compared to 2021 is also due to an increase in indirect emissions relating to the purchase of energy caused by a worsening of the emission factors of the electricity systems in which Enel sells electricity to the end customer.
Scope 1 GHG emissions intensity	229	233	1.7%	The metric considers 100% of direct emissions (Scope 1), including those from power generation (and other emissions in plants), energy distribution, the vehicle fleet and buildings, compared to all power generation (except pumped storage generation). The increase is due to the exogenous factors described above.

The GHG inventory statements were audited by DNV GL, one of the main certification bodies world-wide, with a reasonable level of certainty for Scope 1, Scope 2 and Scope 3 emissions, as limited to the sale of natural gas, and with a limited level of certainty for the other Scope 3 emissions included within the scope of application of the inventory. The audit was conducted according to Standard ISO 4064-3 for the compliance of greenhouse gas (GHG) inventories with the WBCSD/WRI Corporate Accounting and Reporting Standard (GHG Protocol). Furthermore, the calculation of Scope 1, 2 and 3 emissions has been subject to reasonable assurance by the independent auditing company, KPMG SpA.

For more details concerning Enel's carbon footprint, please refer to the 2022 GHG inventory (accessible via the following link: https://www.enel.com/content/dam/enel-com/documenti/investitori/sostenibilita/ghg-inventory-2022.pdf.

Financial, operational and environmental metrics

The main metrics and financial goals regarding the risks and opportunities connected to climate change, as well as the operational metrics along the entire value chain and the environmental ones, are reported below.

Financial metrics

	UM	2022	2021	2022-2021	%
Ordinary EBITDA for low-carbon products, services and technologies[1]	billions of euros	13.9	17.3	3.4	-19.6
	% of tot EBITDA	70.6	90.1	-19	-
Capex for low-carbon products, services and technologies[2]	billions of euros	13.3	12.3	1.05	8.5
	% of total Capex	92.1	93.9	-1.8	-
Revenues from coal plants[3]	billions of euros	6.5	1.9	4.6	-
	% of total Revenues	4.6	2.2	2.4	-
Revenues from thermal generation[3]	billions of euros	24.1	12.9	11.2	86.8
	% of total Revenues	17.2	15.1	2.1	-
Revenues from nuclear plants[3]	billions of euros	1.6	1.4	0.2	14.3
	% of total Revenues	1.1	1.6	-0.5	-
Debt ratio with sustainability criteria	%	63	55	8	-
CO_2 reference price	€/ton	78.2	53.2	24.9	46.8

(1) 2021 figure has been restated to integrate the changes of gas margin due to a change of the control model.
(2) 2021 figure has been restated to consider the inclusion of Latin American retail business in Enel Grids.
(3) 2021 figure has been restated to consider the classification in the count "net results of discontinued operations" concerning the results from the business activities performed in in Russia (disposed in the fourth quarter of 2022), Romania and Greece as they meet the requirements established in the international accounting principle IFRS 5 for the classification of "discontinued operations".

In 2022, Enel's ordinary EBITDA associated with low-carbon emissions services and solutions was 13.9 billion euros, down 19.6% from 2021. The Capex dedicated to low-carbon emission technologies, services and solutions has increased as compared to 2021, reaching 13.3 billion euros, equal to 92.1% of total Capex.

The percentage share of revenues from coal-fired plants increased, mainly due to the need to compensate for low hydraulicity in Italy and Spain due to adverse weather conditions that severely penalized hydroelectric generation in 2022. Specifically, in 2022, revenues related to coal-fired plants correspond to 4.6% of the Group's total revenues.

Enel's strategy of promoting a sustainable financial model has contributed to reaching 63% of debt related to the sustainability objectives.

With regard to the effects of climate change issues, the Group considers them an implicit element in the application of the methodologies and models used to make estimates in the valuation and/or measurement of certain accounting items. Furthermore, the Group has also taken into account the impacts of climate change in the significant judgments made by management. In this regard, the main items included in the Consolidated Financial Statements for the year ended December 31, 2022 affected by the use of management's estimates and judgments concern the impairment of non-financial assets, bonds related to the energy transition, including those for decommissioning and site restoration of certain power generation plants. For further details please refer to Section 5. Climate Change Disclosures in the 2022 Integrated Annual Report.

Operational metrics

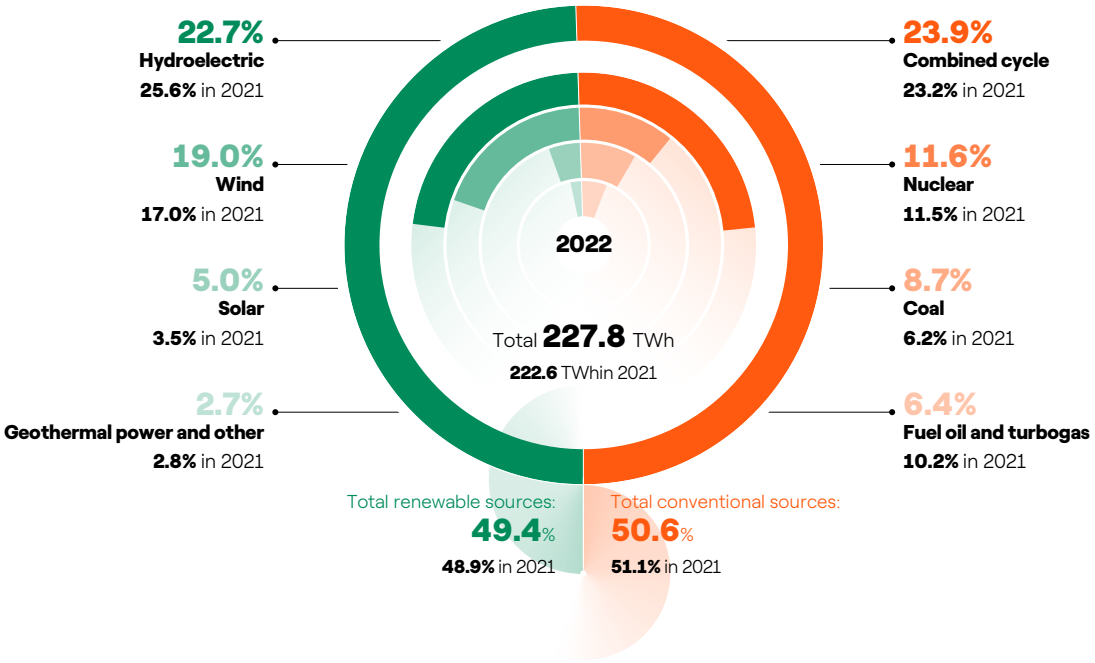
302-1 | EU1 | EU2 | EU3 | EU11 | EU30

Segment of the electricity value chain		UM	2022	2021	2022-2021	%
GENERATION	**Net installed maximum capacity[1]**	**GW**	**84.6**	**87.1**		
	- of which renewables	%	63.3	57.5		-
	- of which thermoelectric	%	32.8	38.7		-
	- of which nuclear	%	3.9	3.8		-
	Net generation[2]	**TWh**	**227.8**	**207.1**		
	- of which renewables	%	49.4	48.9		-
	- of which thermoelectric	%	39.0	39.6		-
	- of which nuclear	%	11.6	11.5		-
	Additional indicators					
	Average thermoelectric park efficiency (%)[3]	%	42.8	42.9	-0.1	
	Total direct fuel consumption	Mtep	26.5	26.3	0.2	0.8
NETWORKS	**Digitalization**					
	End users with active smart meters[4]	no.	45,824,963	44,968,974	855,989	1.9
	Smart meters (coverage)	%	63	60	3.0	-
RETAIL	**Electrification, energy efficiency and digitalization**					
	Publicly owned charging points for electric mobility[5]	.000	22.6	18.1	4.5	24.9
	Electric buses	.000	5.3	3.0	2.3	76.7
	Smart public lighting	mil	3.0	2.8	0.2	7.1
	New services					
	Demand response capacity	MW	9,004	7,713	1,291	16.7
	Storage capacity	MW	760	375	385	-

(1) Does not include managed capacity of 4.9 GW in 2022 and 3.3 GW in 2021.
(2) Does not include generation from managed capacity of 11.3 TWh in 2022 and 9.6 TWh in 2021.
(3) The value is calculated on the park's plants and is weighted on the production values.
(4) The figures for 2021 have been restated. Of which second-generation smart meters 25.2 million in 2022 and 23.5 million in 2021.
(5) KPIs changed from previous year, with focus on publicly owned infrastructure.

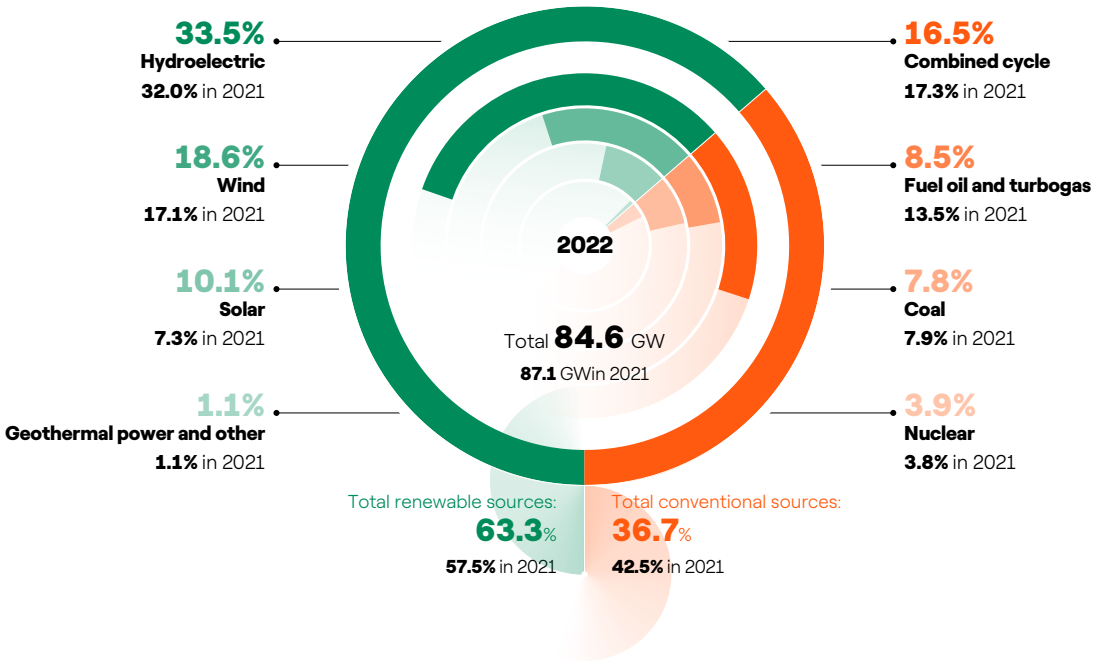
The net electricity generated by Enel in 2022 increased by 5.2 TWh (+2.3%) compared to the value recorded in 2021, mainly due to higher generation from wind sources (+5.5 TWh) mainly in Brazil and North America, a higher contribution from coal-fired plants (+5.9 TWh) in Italy, and higher generation from combined-cycle plants (+2.7 TWh) mainly in Spain and Chile. It should also be noted that the complete deconsolidation of the companies present in Russia took place in 2022, which led to a decrease in net power generated of 11.2 TWh for oil & gas and combined cycle sources only.

Net electricity generation by source (2022)



At the end of December 2022, Group's total net installed maximum capacity was 84.6 GW, down by 2.5 GW compared to 2021. In addition, Group's net renewable installed capacity reached 53.6 GW, up by 3.5 GW from 2021, and accounting for 63.3% of total net installed efficient power.
During the year , 1.8 GW of new wind capacity was installed, mainly in North America, Brazil and Spain, and 2.6 GW of new solar capacity, mainly in Chile, the United States, Spain and India.
In addition, as already mentioned for net power generated, all companies in Russia totaling 5.3 GW were deconsolidated.

Net installed maximum capacity (2022)



In 2022, Enel maintained a key role in developing new solutions to accelerate the energy transition process through the development of 760 MW of storage capacity, increasing the current GW of demand response by 51% compared to 2021.
The digitalization of the electricity grid, which has been identified as a key enabler able to positively influence climate change through levers such as the integration of more renewable energy or an increase in energy efficiency, continued being a priority for Enel also in 2022. In particular, in 2022 the total number of end users with active smart meters grew 1.9% as compared to the previous year, reaching 45,824,963 in 2022.

Environmental metrics

302-3

The following table presents the environmental metrics related to climate change, in addition to the greenhouse gas emissions previously described. Refer to the chapter on "Conservation of natural capital" of 2022 Sustainability Report.

	UM	2022	2021	2022-2021	%
Specific withdrawal of freshwater[1]	l/kWh_{eq}	0.23	0.25	-0.02	-8.0
Withdrawal of water in water stressed areas[1] [2]	%	19.2	23.0	-3.7	-16.3
Generation with water withdrawal in water stressed areas[2]	%	13.3	14.0	-0.70	-5.0

(1) The new target of reducing specific freshwater withdrawals, turning its attention to the most valuable and vulnerable water resource, testifies to Enel's even more explicit commitment to the protection of natural habitats and the needs of the community. In particular, the objective is in keeping with the reporting and commitment requirements introduced by the new proposed EU EFRAG ESRS-E3 Water and Marine Resources standard, and with the environmental impact (or pressure) priorities indicated for corporate analysis of nature-related risks and opportunities by the international TNFD and SBTN frameworks.
(2) The total value of process and closed-loop cooling water withdrawals for the year 2021 was recalculated following the refinement conducted in 2022 of the way in which water withdrawn for cooling purposes at certain nuclear power plants in Spain was calculated.

Financial and operational targets

The table below shows the main operational objectives included in the 2023-2025 Strategic Plan, which reflect Enel's role in combating climate change along the entire electricity value chain, in addition to the GHG emission reduction targets described in the previous section.

Segment of the electricity value chain	Description of the goal	UM	2025
GENERATION	**Net installed maximum capacity[1]**	**GW**	**79.9**
	- of which renewables	%	76
	- of which thermoelectric	%	20
	- of which nuclear	%	4
	Net generation[2]	**TWh**	**204**
	- of which renewables	%	70
	- of which thermoelectric	%	17
	- of which nuclear	%	13
NETWORKS	**Digitalization**		
	Smart meter	mil	48.3
	Smart meters (coverage)	%	~80
MARKET	**Electrification, energy efficiency and digitalization**		
	Publicly owned charging points for electric mobility[3]	.000	31.4
	Electric buses	.000	12.965
	Smart public lighting	mil	3.3
	New services		
	Demand response capacity	GW	12.4
	Storage behind the meter	MW	352

(1) Does not include managed capacity and BESS, which are around 10 GW and about 5 GW by 2025, respectively.
(2) Does not include generation from managed capacity of approximately 25 TWh in 2025.
(3) KPI changed from previous year, with focus on publicly owned infrastructure.

In addition, the following targets have been set to 2030:

- renewable capacity out of the total: ~85% (~+20% from 2022);
- gas sold: ~3 bcm (-70% from 2022);
- demand response capacity: >20 GW (>2x compared to 2022);
- digitalized network customers: 100% (+37% compared to 2022).

Concept design and realization
Gpt Group

Copy editing
postScriptum di **Paola Urbani**

Publication not for sale

Edited by
Enel Communications

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Enel
Società per azioni
Registered Office 00198 Rome - Italy
Viale Regina Margherita, 137
Stock Capital Euro 10,166,679,946 fully paid-in
Companies Register of Rome and Tax I.D. 00811720580
R.E.A. of Rome 756032 VAT Code 15844561009