



Energy Transition Roadmaps

Enel vision for a low carbon economy

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Low Carbon and Energy Policies

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Enel leadership in the new energy world



1st network operator¹



73 mn end users

World's largest player in renewables²



46 GW capacity

Largest retail customer base worldwide³



70 mn customers

Active in 5 continents

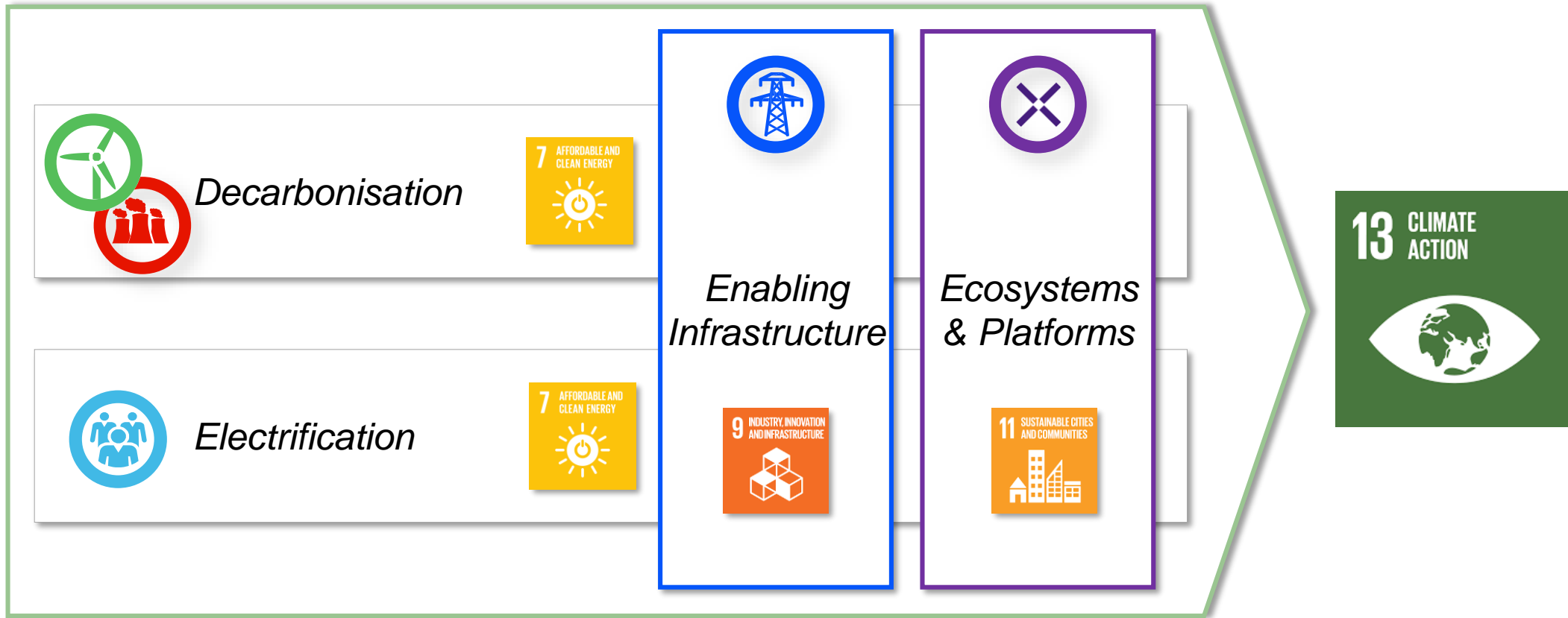


32 countries

Data updated to 31.12.2019

1. By number of end users. Publicly owned operators not included
2. By installed capacity. It includes managed capacity for 3.7 GW
3. Including customers of free and regulated power and gas markets

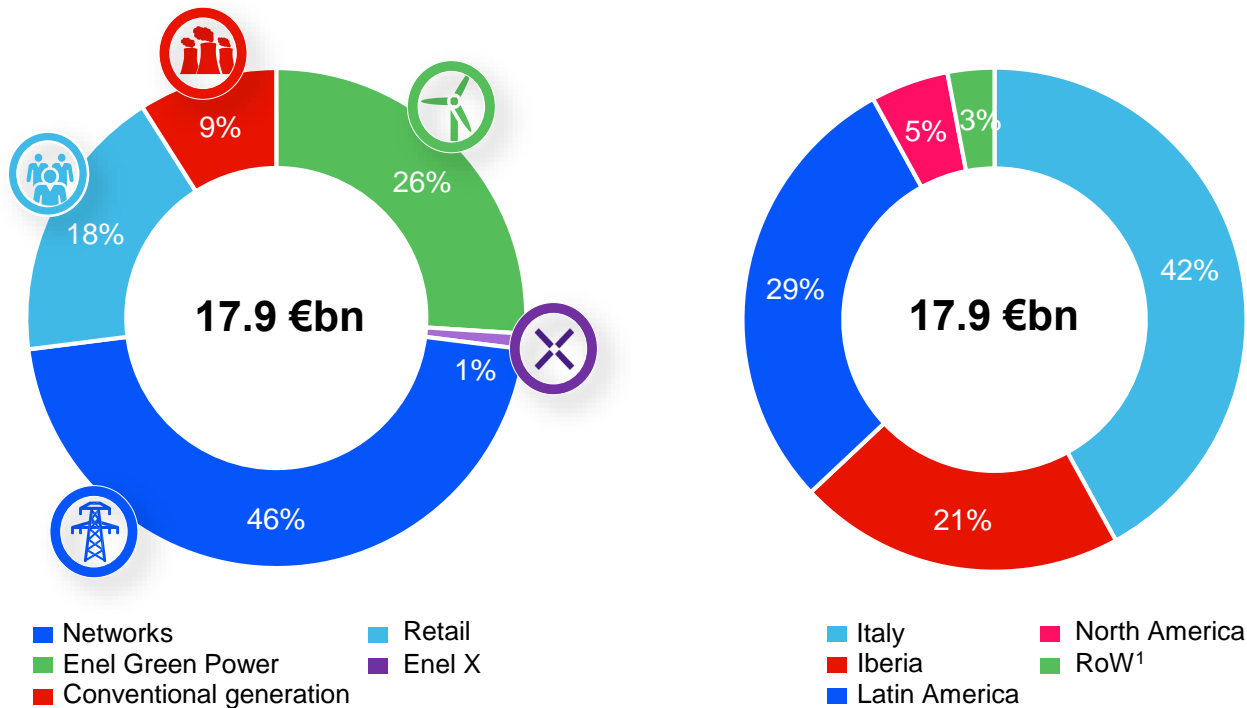
Our strategy addresses dynamically the evolution of sector trends



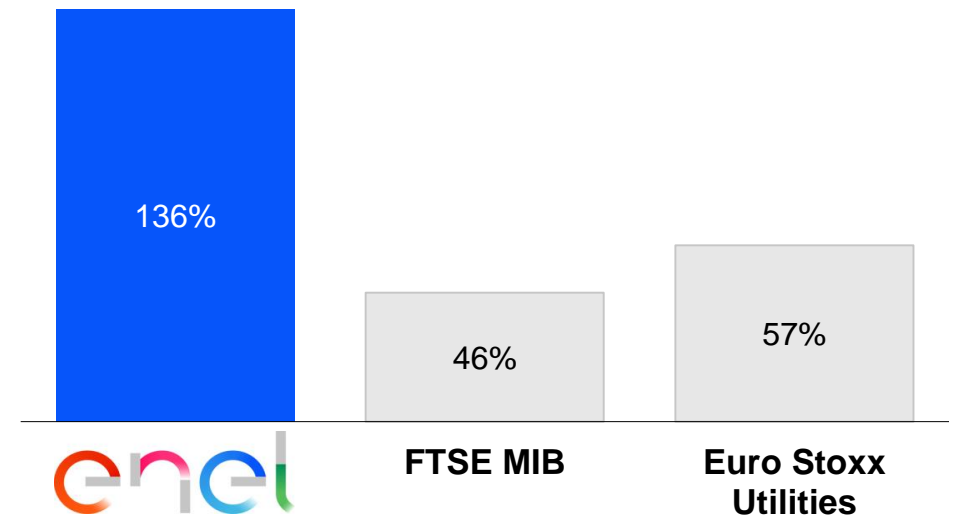
A sustainable and fully integrated business model delivering value for shareholders



2019 EBITDA by business and by geography



2015-2019 total shareholder return²

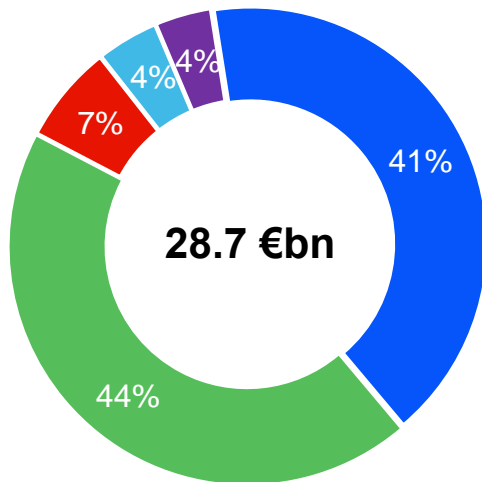


1. RoW: Africa, Asia & Oceania, Rest of Europe
 2. From Jan 1st 2015 to Dec 31st 2019

A fully sustainable capex plan

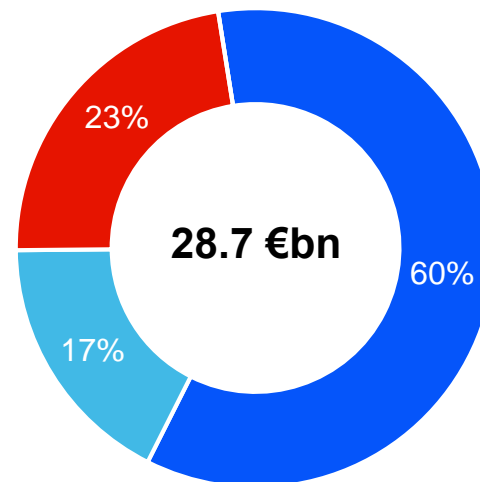


Total gross capex by business and by nature 2020-22

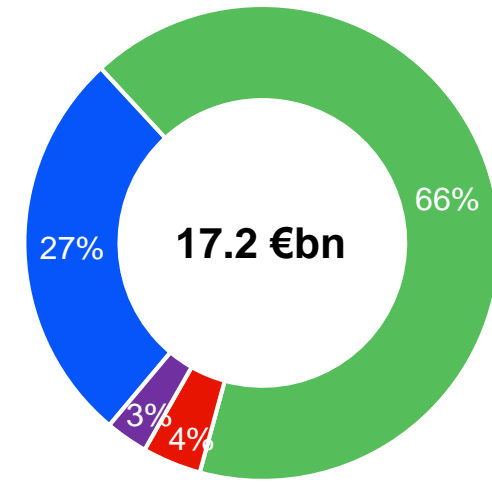


- Networks
- Enel Green Power
- Conventional generation
- Retail
- Enel X

Asset development by business 2020-22



- Asset development
- Customers
- Asset management



- Networks
- Enel Green Power
- Enel X
- Conventional generation



~ 95% of capex SDGs related

Key streams of the Paris Agreement

Three pillars drive the interest of the private sector

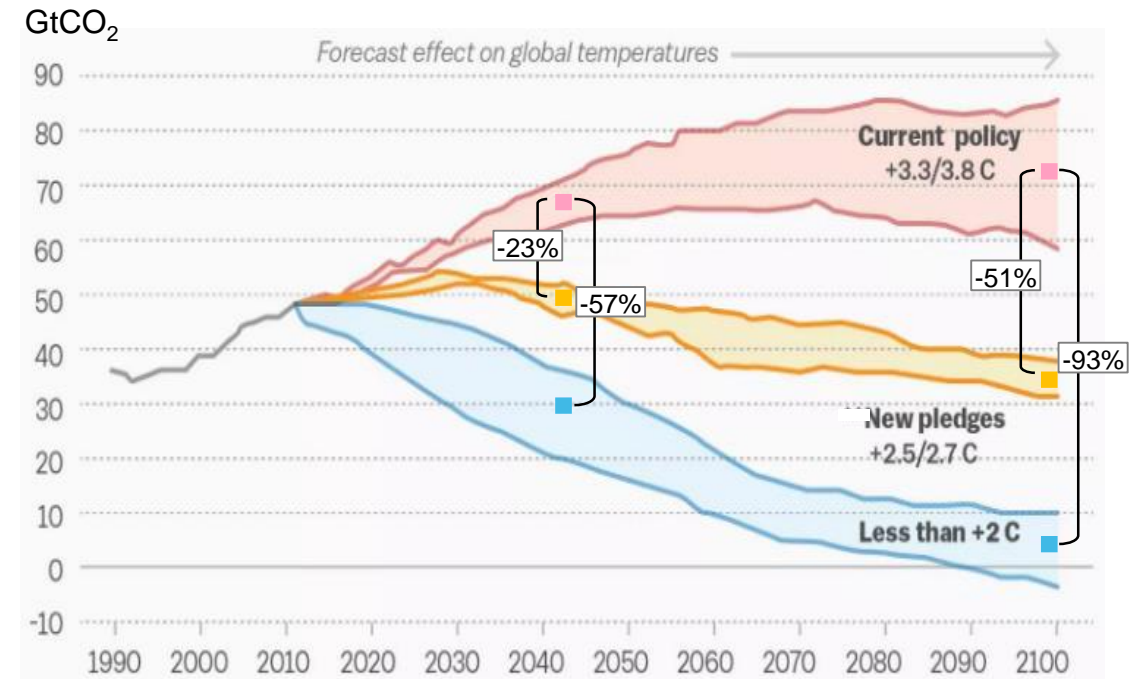


- **Ambition** - Long term goal of keeping raising temperature “well below 2°C” with efforts to stay within 1.5°C:
 - Emission peak “as soon as possible”
 - Carbon neutrality in the second half of the century
 - More than 95% of global emissions covered



- **Transparent Governance** - A transparent framework foreseeing:
 - **Clear and transparent** NDCs to be periodically upgraded
 - **“Highest possible ambition” through NDC** (Nationally Determined Contributions)
 - **5 years pledge review system**
- **Climate Finance**
 - **Public Finance** – confirmation of the commitment to mobilize 100 Bn USD/yr to climate finance (not backed by the current level of pledges)
 - **Carbon Markets**- Reference to carbon trading through “mitigation outcomes” and new project-based crediting mechanism

Global emission trends (GtCO₂)
The 2°C and 1.5°C goal calls for much more ambition



Diversified energy transition policy drivers

Together with climate change, other important policies are accelerating the transition



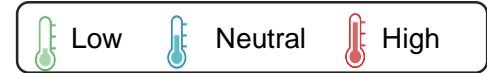
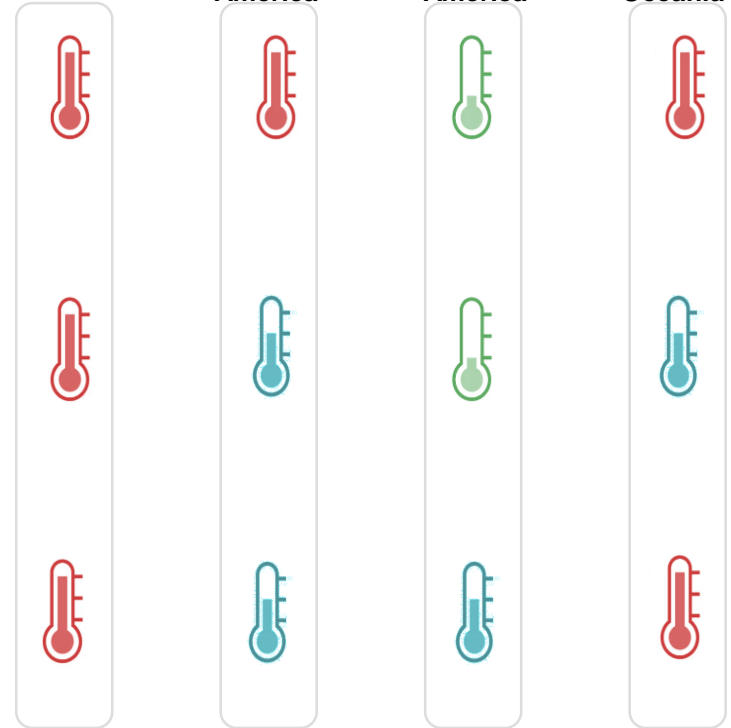
Environment
Air quality and environmental sustainability



Geo-Politics
Security of primary energy supply



Industrial Development
Economic competitiveness vs green growth






Note: Qualitative evaluation. Regions are subject to national peculiarities

Energy Transition Roadmaps

Translate COP21 global commitments at country and regional levels



-  **Accelerating the energy transition at National Level:** roadmaps to support Governments in implementing the energy transition fully exploiting the three key levers of emission free electricity, digitalized grids, electrification
-  **Supporting transparent and stable policy and regulatory frameworks:** supporting Governments and UN Institutions in implementing the Paris Agreement with clear and effective Climate and Energy Plans reflected in transparent NDCs*
-  **Promoting effective climate finance programs and market mechanisms:** cooperation with National Governments, UNFCCC institutions and other Stakeholders (e.g. Development Banks, NGOs) to design effective up-scaled and streamlined financing tools and market mechanisms to support the energy transition

* NDC - Nationally Determined Contribution: national targets and related climate-energy policies foreseen by the Paris Climate Agreement

Enel's Energy Transition Roadmap Projects

Building consensus on the right path to meet the Paris Agreement goals



Scenario analysis



...build a sustainable long term policy scenario taking into account characteristics of each geography and leveraging on renewables, electrification and grid digitalization

Policy Recommendations



....define a set of policy recommendations triggering the needed investment for an efficient, sustainable and low carbon economy



Stakeholders engagement

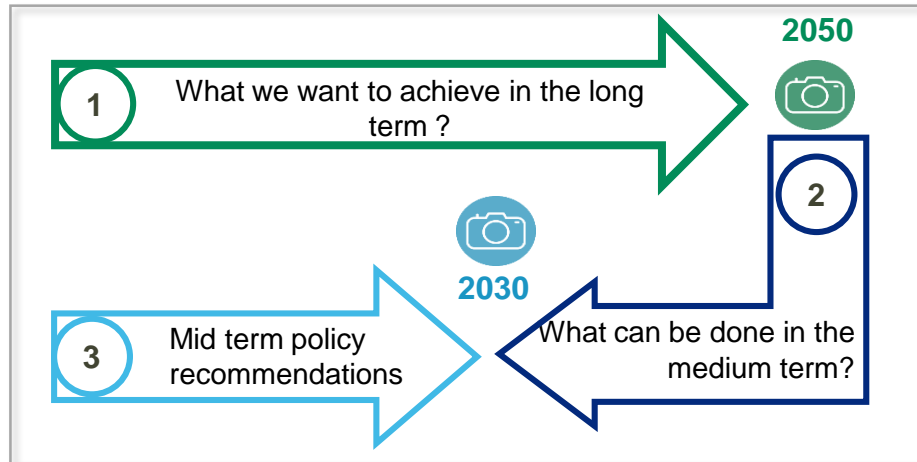
.... involvement of multiple stakeholders along the whole process for defining and shaping the long term vision and mid term actions

Energy Transition Roadmaps approach overview



A simplified approach to explore the role of Enel's industrial levers within the 2050 pathways

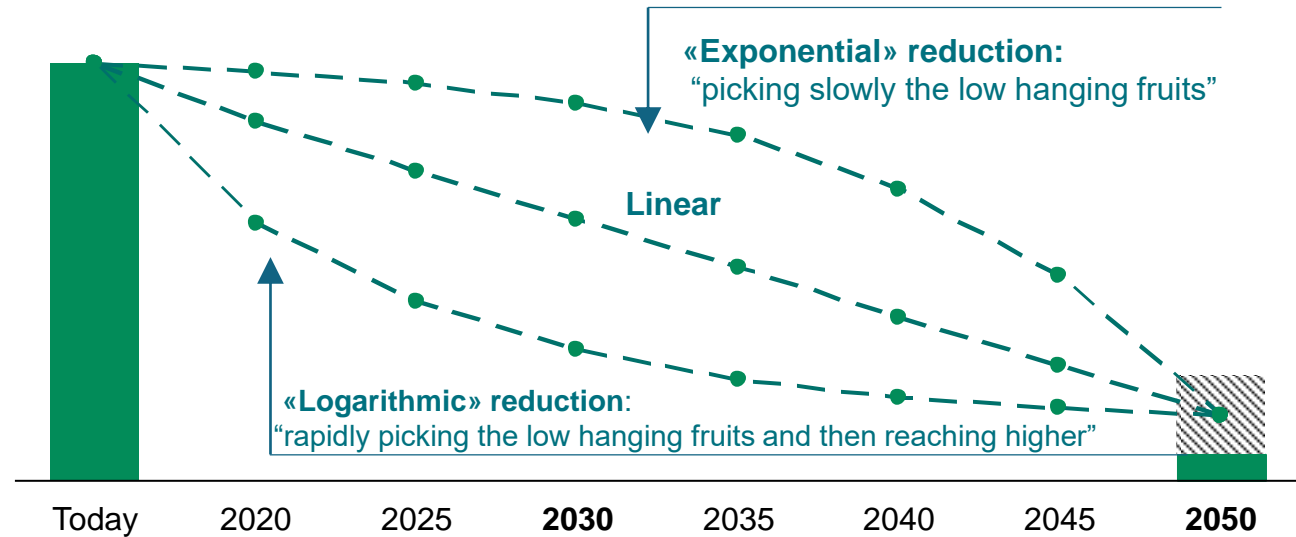
4 Steps Projects



4 Stakeholder engagement aimed at disseminating Enel's vision

A trajectory consistent with the 2050 GHG goal requires a step-change in policy action in the direction of higher reliance on low emissions electricity across different end-uses

3 Main Sectorial GHG Emissions Paths*



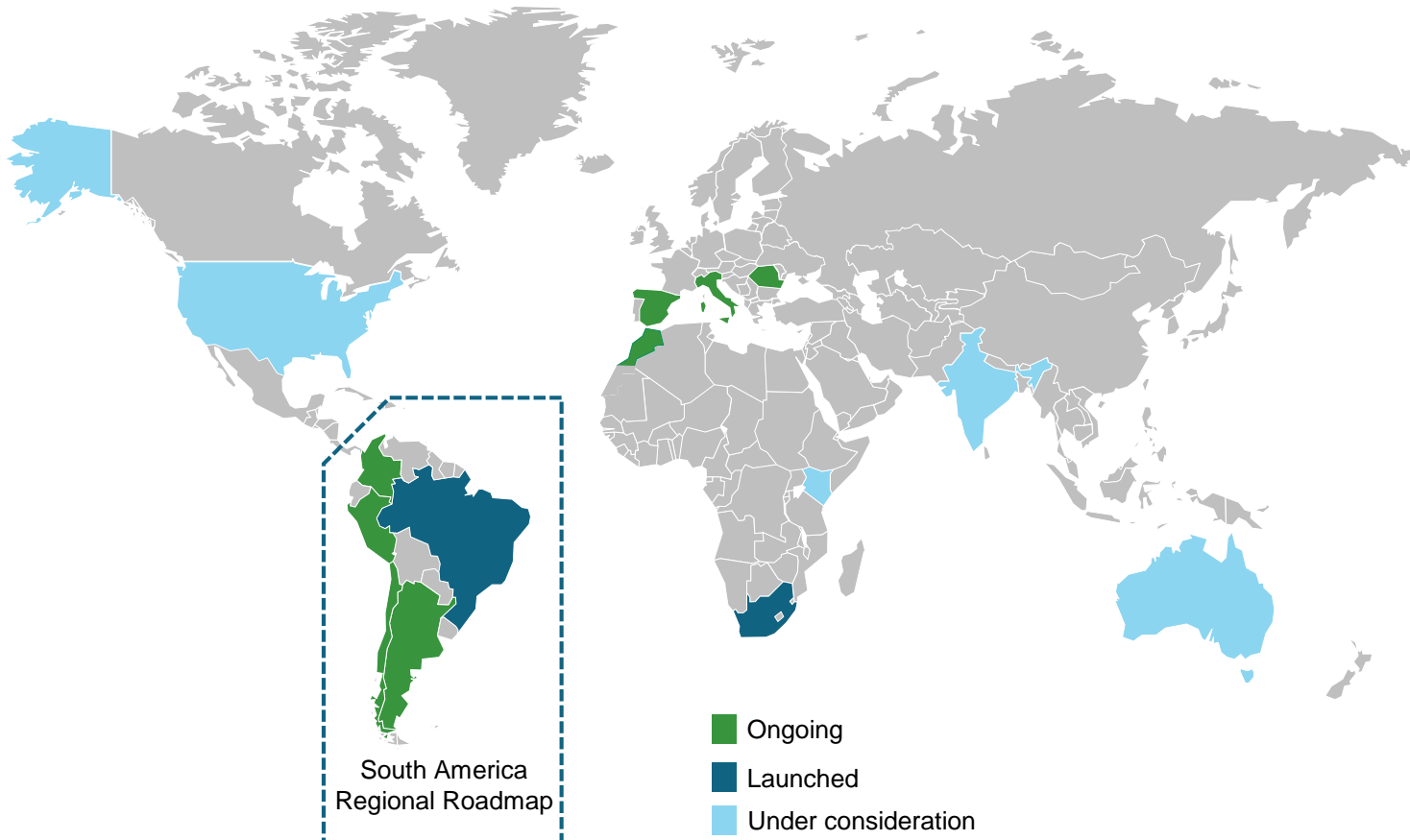
* Illustrative graph

Enel experience on the Energy Transition

Exploring medium and long term policy scenarios across different geographies



Enel's Energy Transition Roadmap Projects



Ongoing	Recently Launched	Under Consideration
<ul style="list-style-type: none"> Spain Romania Argentina Chile 	<ul style="list-style-type: none"> Italy Colombia Morocco Peru South Africa Brazil 	<ul style="list-style-type: none"> India Australia Kenya USA*

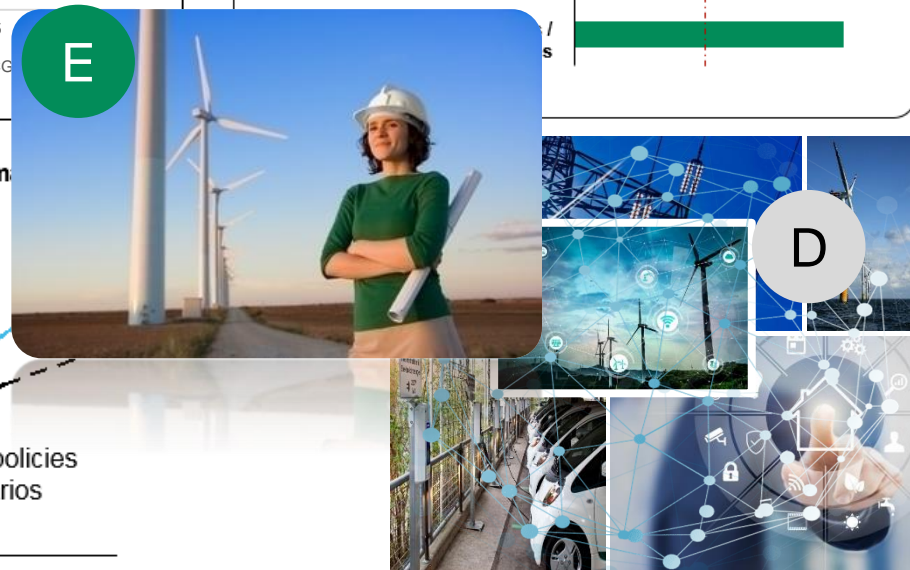
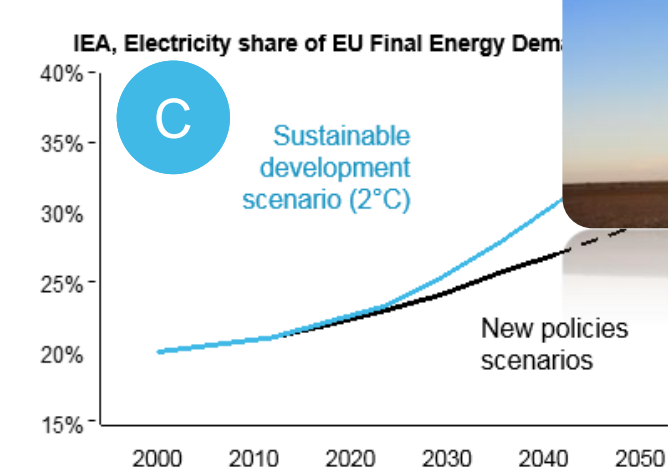
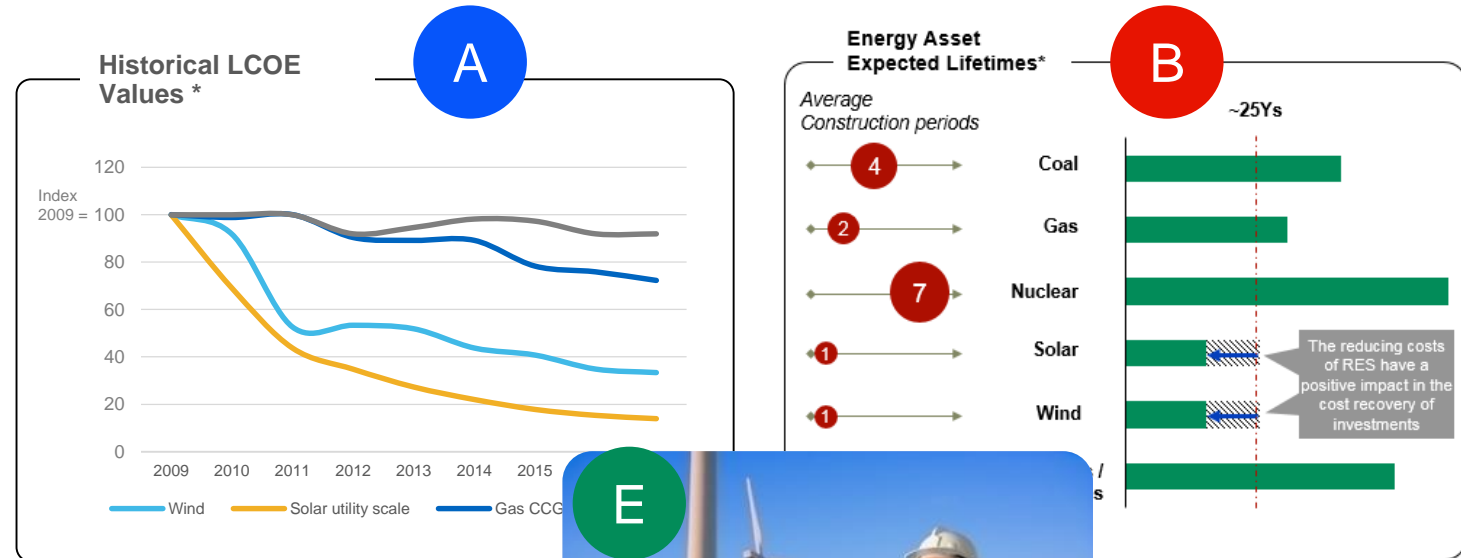
*selected states

Learning from the Energy Transition Roadmaps



A smooth and just transition poses clear challenges across the full length of the value chain

- A** Taking advantage of renewables' falling costs
- B** Managing a just and smooth phase out of fossil assets
- C** Fully exploiting electrification opportunities
- D** Giving a central role of upgraded, smart grid
- E** Ensuring effective jobs conversion and re-skilling



Sources: * BNEF; **IEA, Projected cost of generating electricity 2015, Harvard Landscape Infrastructure 2012

South America Roadmap (SAR)

Galvanizing a regional sustainable energy transition



SUPPORT

From national to regional: country based Energy Transition Roadmaps will support the development of a South American long term vision and Enel's Industrial Plan.
SAR combines all major results from the single roadmaps and promotes specific recommendations with aggregated value for the region



ENGAGE

Under the SAR umbrella, Enel Americas will engage and mobilize regional stakeholders (public and private sector, regional and international organization) around the common goal of a sustainable energy transition



REINFORCE

Insights and findings from SAR will reinforce and feedback ongoing national Energy Transition Roadmaps, supporting countries' strategy to build an investment framework which enhances the development of an efficient, sustainable and low carbon economy

Methodological challenges for Roadmap management



Governance will be key for a smooth low carbon energy transition

- **Balancing short and long-term dynamics for sustainable development** – discount rates for clean investments are falling dramatically, while lack of fast action increases costs exponentially. Trade offs between present and future actions exist and must be considered in decision making processes – especially in the post-COVID recovery planning
- **Fundamental cross sector synergies** – exploit cross sectoral processes, technologies, cost and benefits must be integrated into sectoral benefits to efficiently harvest available synergies (digitalization) A Just Transition must be pursued also looking at inter-sector dynamics and opportunities
- **Enhancement of the multilayer governance** – global (Paris Agreement), regional (Pacific Alliance), national (NDCs) and local efforts and policies benefit from coordination (specially for land management and adaptation). Opportunities for exploiting offsets for carbon sinks need to be managed at national, regional and global level through a phased art.6 implementation