



L'ENERGIA CHE TI ASCOLTA.

ETS Readiness

How firms prepare for and thrive in a CO₂ capped environment?

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Low Carbon Policies and Carbon Regulation - Enel Holding

Shanghai, 29 October 2013

Enel today – A global operator

2002

Presence

3 countries

Installed capacity

46.500 MW

Yearly production

154 TWh

EBITDA

7,9 Bn €

Clients

31 million

Employees

71.200

Investment plan 2003-07

21 Bn €



2012

Presence

40 countries

Installed capacity

97.800 MW

Yearly production

296 TWh

EBITDA

16,7 Bn €

Clients

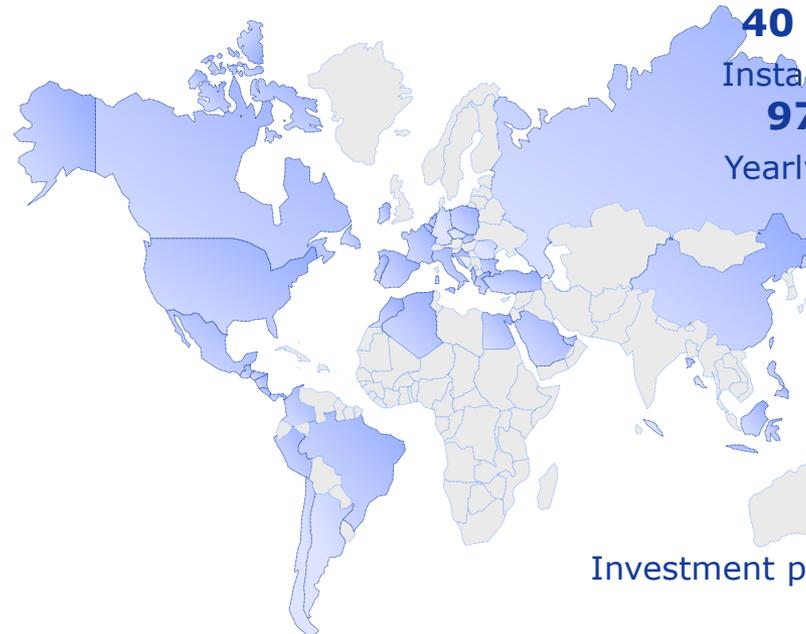
61 million

Employees

73.700

Investment plan 2013-17

27 Bn €

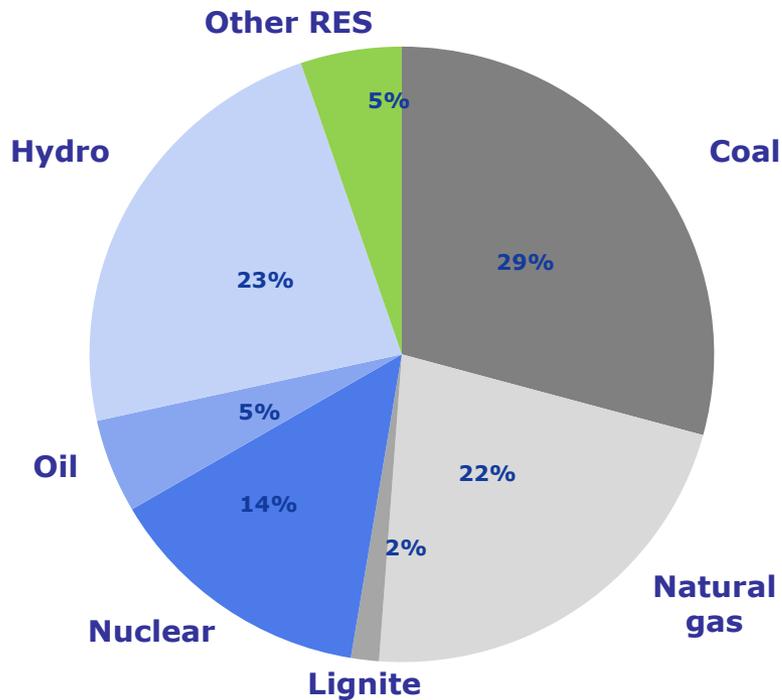


Global operator with activities spanning across geographies and the entire power value chain

Enel today – Diversified asset base

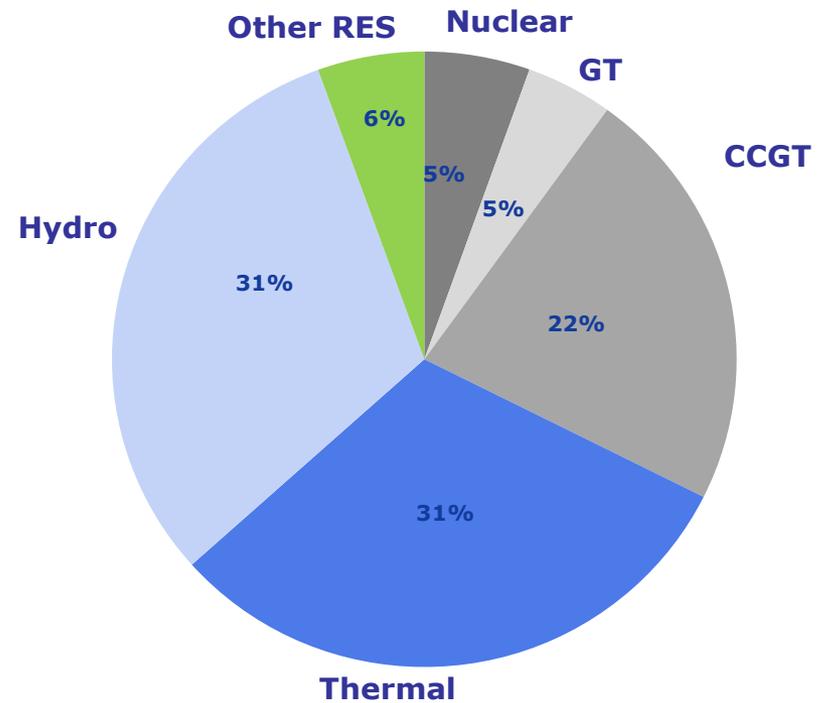
Total production 2012

296 TWh



Total installed capacity 2012

97.8 GW



Low-carbon technologies represents 42% of total group installed capacity

Carbon Policy and Regulation

Gazing into the crystal ball

Preparing



- **Understanding the framework - Regulatory presidium** on regional and international carbon markets
- **Leveraging on the necessary resources:**
 - **Specialized competences and personnel**
 - **Dedicated programs** with national public authorities (i.e. voluntary agreements, int cooperation programs)
 - **Trade associations** leveraging on sectoral and regional dimension (i.e. IETA, Eurelectric, GSEP, EFET)

Flourishing

- **Leadership on regulatory issues and advocacy** - Active contribution to the EU ETS development and revision processes
- **Management of compliance challenges and minimization of regulatory risks** – Timely implementation of compliance system and management of Quality Restrictions on offsets (i.e. ERUs, CERs)
- **First mover advantage on business opportunities** – primary sourcing of CDM projects

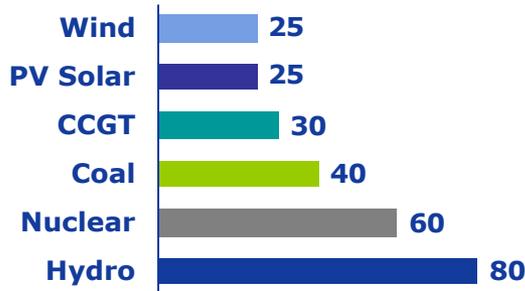


Timely management of regulatory developments ensured active contribution to the evolution of the policy framework

Long term planning

Staying ahead

Preparing



Power plants life time (yrs) Source: IEA 2010

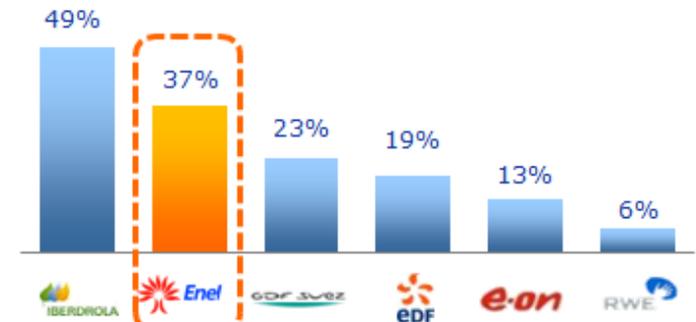
- **Facing the challenge of a changing generation mix:**

- **Shorter investment horizons** – from 40 yrs of conventional power plants to the 25 yrs of new RES
- **Weak carbon signal price** on the short term (pEUAs ~4,60 €/ton)
- **Regulatory uncertainty** – Incentives for low carbon technologies; outcomes of UNFCCC negotiations

Flourishing

- **Low Carbon Competitive advantages** – more than 6 Bln Euros planned RES investments 2013-17
- **Leader in developing emerging low carbon technologies:**
 - **CCS projects** - Post-combustion, Oxy-combustion Pilot projects and pre-combustion R&D
 - **Innovative RES** – Concentrated Thermo-dynamic solar, Biomass co-combustion; combined Geo+Solar and Geo+Biomass
 - **Smart infrastructures** – 32 mln of remotely managed customers, 7 smart grids pilot projects, 1200 recharge points for e- vehicles

Renewables capacity as % of total capacity



Source: Enel Data

Managing the challenge of planning for an uncertain transition to carbon neutrality

Operational management

Improving internal and market performance

Preparing

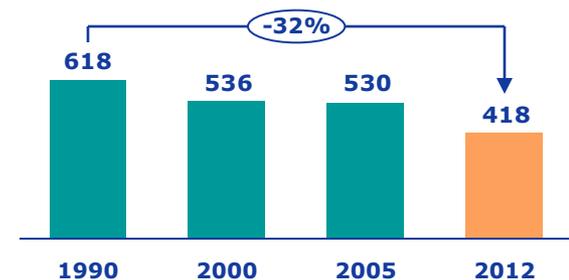
- **Reliable data collection** related to the whole Group (annual environmental reporting)
- Increasing **environmental awareness** in CO₂ performance monitoring
- **Integration of the CO₂ factor** within operational planning



Flourishing

- **Centralized monitoring plan and best practice sharing** among power plants
- **Improving environmental standards** beyond the compliance obligations through voluntary protocols (based on IPCC methodologies)
- **Optimizing** volume and generation fuel mix through fuel switching

Enel emission intensity reduction (gCO_{2eq}/kWh)



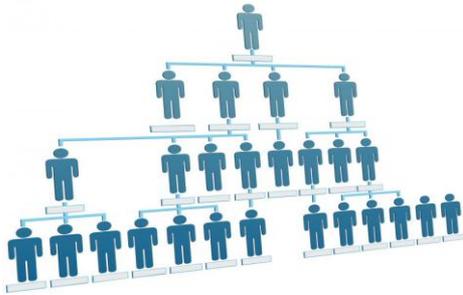
Source: Enel Data

Carbon variable as an opportunity to further improve environmental and economic performance

Organization

Adapting and moving with the times

Preparing



- Ensuring top-management buy-in on low carbon strategy
- Need to **integrate carbon issues within the business lines**
- Need to **adapt** to a changing **environment**

Flourishing

- **Carbon Strategy** - Introduction of a dedicated business line managing Carbon Market portfolio
- **Low Carbon Policies and Carbon Regulation** - a dedicated Holding level unit
- **EGP** - Creation of a dedicated company for developing new RES
- **Sales to Services** - Integrating energy efficiency in the retail services



A dynamic balance between integration in the business lines and creation of dedicated units

Portfolio management and carbon sourcing

Converting burdens in opportunities



Enel CDM Project portfolio 2012

Preparing

- **Early mover** in scouting low carbon projects (1999 Sino-Italian Cooperation Program) and best accessible technologies
- **Direct involvement** in all value chain in the credits supply had reduced sourcing costs and guaranteed control and environmental quality
- **First CDM private buyer** present in China, India, Africa and Latin America with more than 100 projects and a well diversified portfolio in terms of technologies

Flourishing

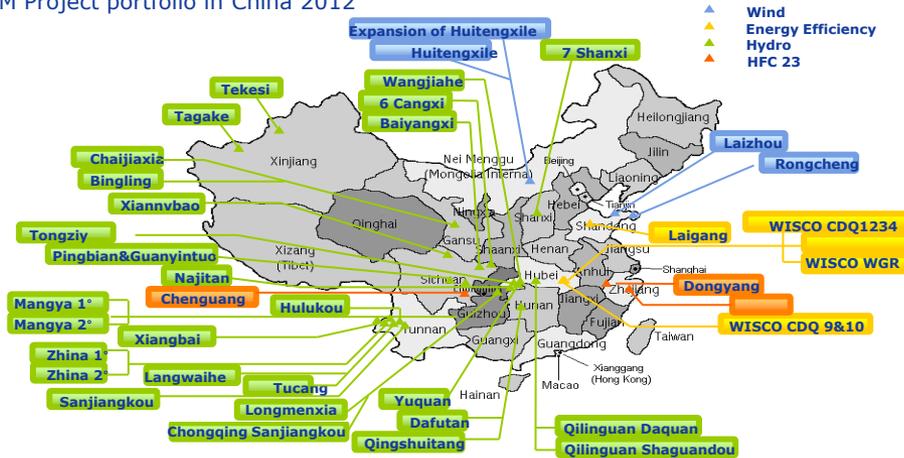
- **Minimizing the compliance cost** through the use of flexible mechanisms which allows at the same time to maximize the environmental benefit
- **Carbon trading activities** hedging the power generation risk while taking advantage of market opportunities
- Presence in the voluntary carbon market with **carbon neutrality services** for offsetting emissions on a wide range of activities



A wide portfolio management minimizes and diversifies risks and reduces compliance costs

Enel Group presence in China

Enel CDM Project portfolio in China 2012



Preparing

- **First private operator** in the Chinese CDM market with **more than 70 projects**
- Enel Group **presence in Beijing** with a representative office involved in **carbon strategy, procurement and institutional collaboration** activities
- **Cooperation** with the largest Chinese utilities on **CCS and low carbon technologies**

Flourishing

- **Presidium on CDM** market and on its possible evolution towards New Market Mechanisms
- **Establishing partnership with Chinese operators** in the field of ETS market readiness, low carbon technologies and emissions abatement
- **Market operator** in emerging Chinese ETS



More than 10 years of experience in Carbon Market to provide high added value for the future

Conclusions

In preparing ...

- **Forward looking** is critical in order to lead the change
- **A strategic approach** combining regulation, planning, operations, portfolio management and sourcing ensures an effective mobilization of all the companys' levers
- **Rapid top-level buy-in** and development of competences and experiences allows to stay ahead

In flourishing ...

- Despite uncertainties over the timing the low carbon trend is irreversible and **opportunities arise** on the national, regional and global scale
- Operational opportunities exist in terms of both increased **efficiency** and **market transactions**
- Developing low carbon assets ensures **competitiveness** and **risk diversification**