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

Source: Bilanci consolidati Enel
Enel today – Diversified asset base

**Total production 2012**
296 TWh

**Total installed capacity 2012**
97.8 GW

- **Hydro**: 31%
- **Nuclear**: 22%
- **Gas**: 31%
- **GT**: 5%
- **CCGT**: 5%
- **Other RES**: 6%

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

Source: Environmental Report 2012
Carbon Policy and Regulation

Gazing into the crystal ball

Prepping

- 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

- 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

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

Power plants life time (yrs)  
Source: IEA 2010

Coal 40
Nuclear 60
Hydro 80

Renewables capacity as % of total capacity

Source: Enel Data
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

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

Enel emission intensity reduction (gCO₂eq/kWh)

Source: Enel Data
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

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

**Preparation**

- **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 company's 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**