



Italy-Japan Business Group



Plenary meeting – Working group Energy

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Enel Group key figures

2008

Present in all key steps
of the energy value-
chain: generation,
distribution, sales

Key facts (including Endesa)

Employees	83,000
Revenues	61 bn eur*
EBITDA	14 bn eur*
EBIT	9,5 bn eur*
Installed capacities	95 GW**
Countries	23

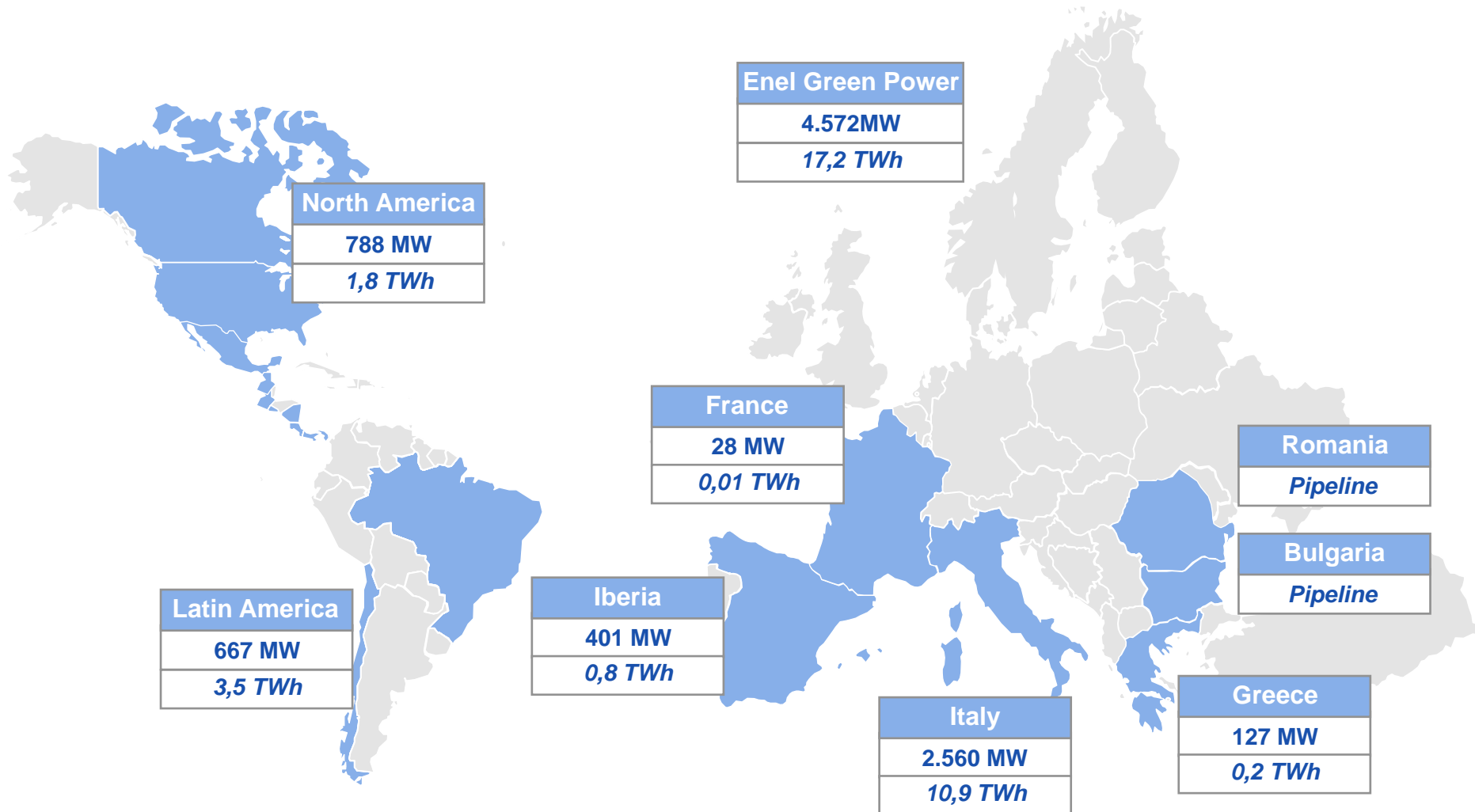
(*) Financial highlights with Endesa consolidated at 67,05%

(**) All technologies

Enel Green Power: large renewable player well positioned in growth geographies

Capacity – 1H 2009; Total electricity production - 2008

EGP presence



Note: Endesa installed capacity is 1.026 MW (799 MW in Iberia and 227 MW in Latin America)



Enel's innovation: our vision

Long-term scenario (2030)

Generation plants

- **High reliability and safety**
- **Generation mix based on:**
 - » **Zero emission plants** (carbon capture sequestration and renewables)
 - » **Third generation nuclear plants** (and development of 4° generation reactors)
 - » **Distributed generation**

Grids

- **Cities and industrial complexes as single virtual plant** to be integrated in the overall energy system
- **Active distribution grids**

Storage systems

- **Storage systems, both concentrated** (high capacity) and **distributed** (development of renewable energy and better service quality)

End usage

- **Domotics and post-metering services**
- **Evolution from electricity sale to electrical services/"wellness" sale**

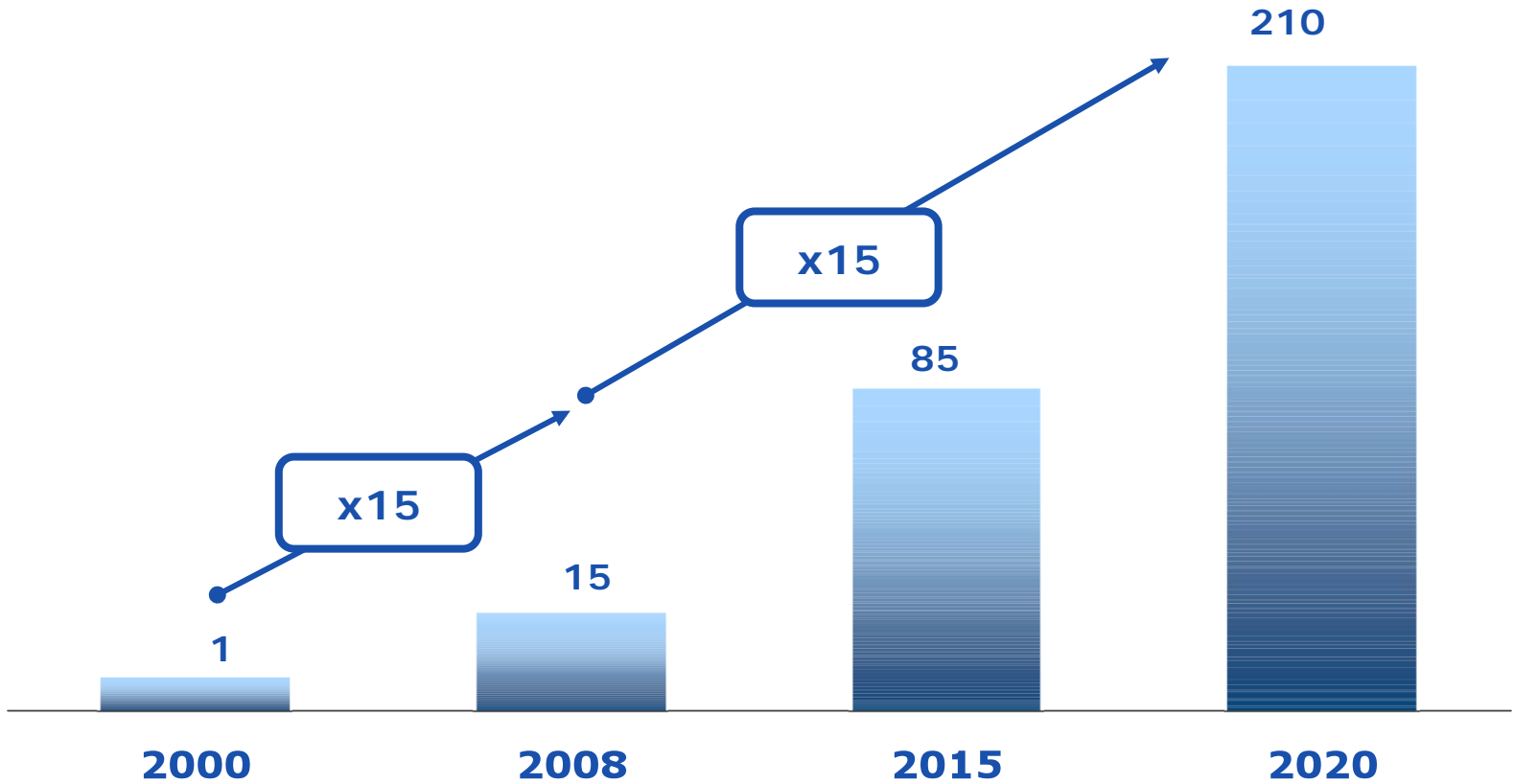
Mobility

- **Electrical mobility** (strongly developed)
- **Hydrogen mobility** (under development)

2030 scenario represents a step-change vs. current generation-distribution-utilization of electricity

Strong growth expected in worldwide photovoltaic capacity

Cumulative Power in GW



- Capacity growth rates of photovoltaic power above 15% per year
- In 2008 worldwide capacity increased by over 5,000 MW

Source: Enel analysis on WEO 2008, industry reports



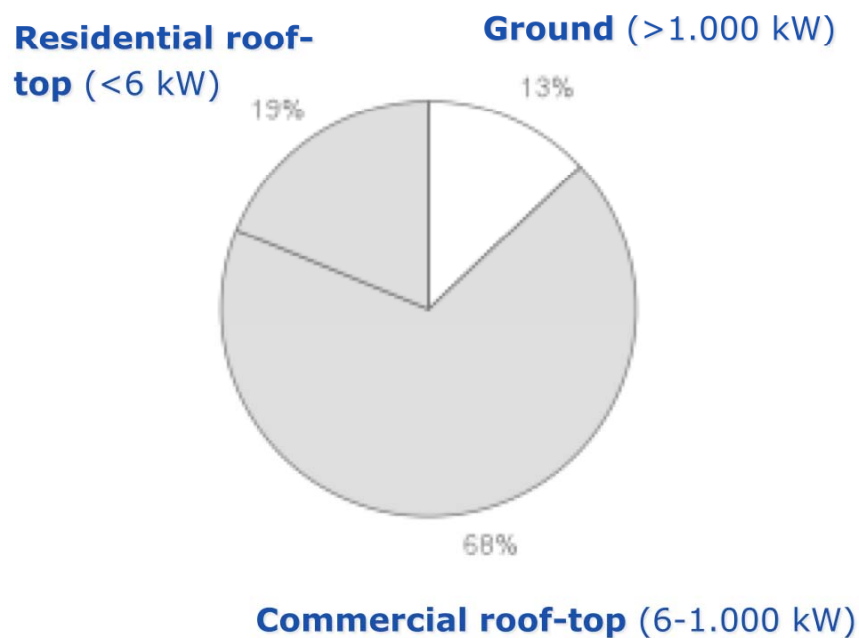
Thin-film Photovoltaic Modules Manufacturing Joint Venture: key facts

- **3 Partners:**
 - Enel
 - Sharp
 - Leading European manufacturer
- Capacity: **480 MWp** yearly production (with option to further expand to 960 MWp in a second phase) to be ramped-up with modular approach
- Start of production: **End of Q4 2010**
- Technology: **Sharp triple junction** thin-film
- Location: **Catania** (southern Italy)
- **500-600** direct employees involved
- **Additional JV** focused on development of **solar farms in EMEA** to support factory off-take
- Additional effort to develop **R&D focused on photovoltaic**

A large part of photovoltaic development has come from small scale plants (commercial and residential roof-top)

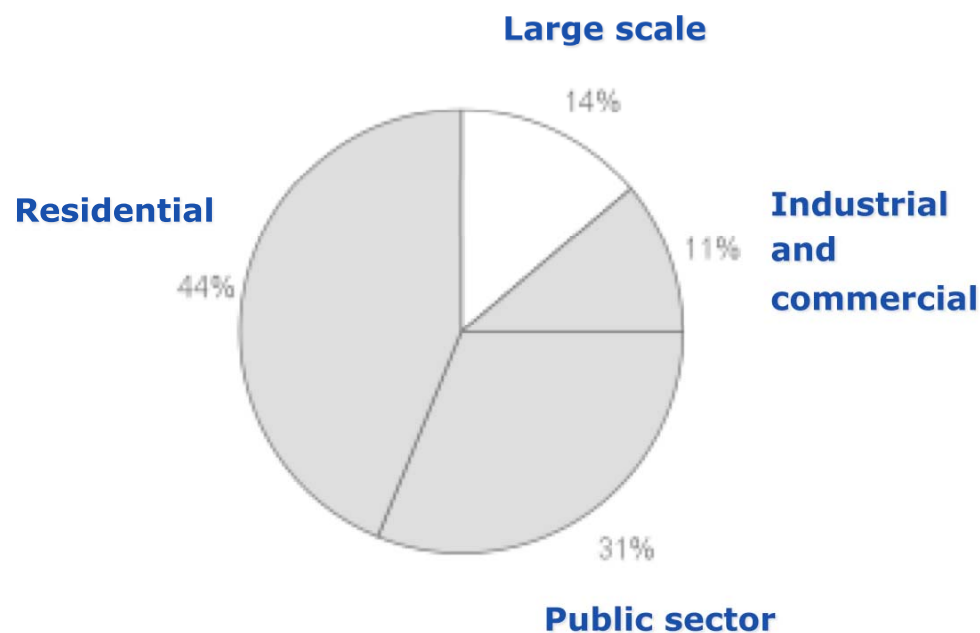
Italy

Cumulative installed (end 2008) 420 MW



Germany

Cumulative installed (end 2008) 5.270 MW



Source: GSE (Italy); Ernest&Young May 2009 (Germany)



Enel.si: access to the prosperous retail market

Business model

- **Franchising: local entrepreneurs supported by Enel.si**
- **Enel.si** provides centralized communications, products, technical assistance, finance solutions, sales and technical training platform
- Development of **distributed renewable energy generation** devices and **energy efficiency solutions**

Status

- Over **450 franchisees** with local points of sale
- Over **50 MW photovoltaic solutions sold**

Development opportunities

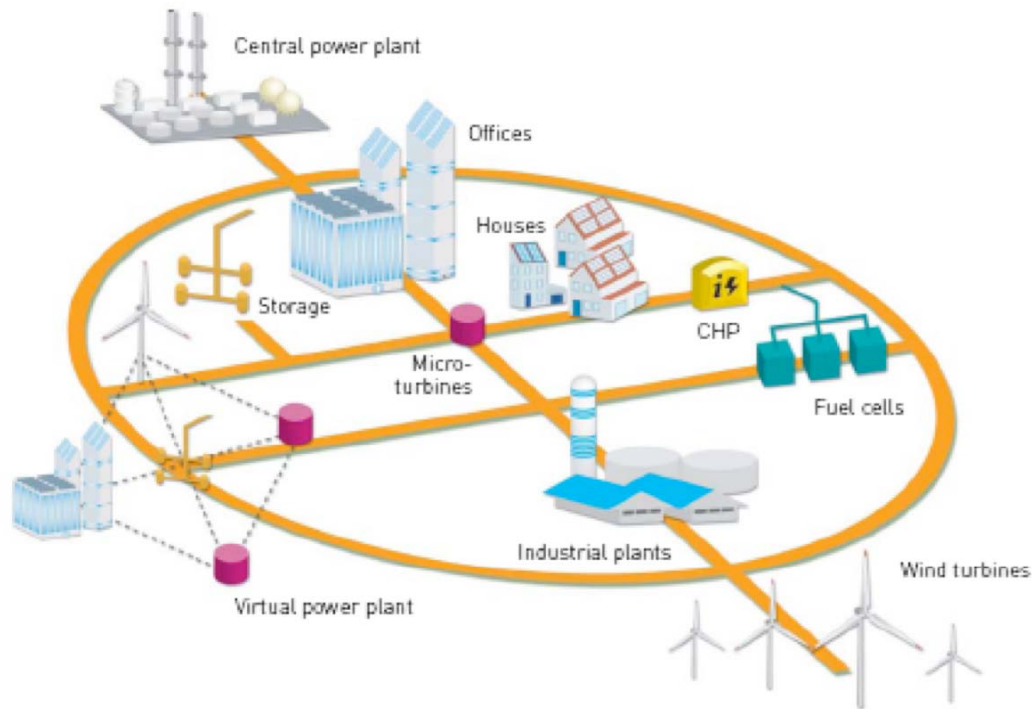
- Refueling **product pipeline** with new innovative applications
- Expansion of **franchise network to over 1,000**
- Extension of business model to **selected countries with local partners**

Over 450 franchisees
locally distributed over Italy



Enel's innovation: focus on Smart Grids

A new grid model



Description

- **Active grids able not only to manage the electricity produced by large power plants (as of today) but also to integrate and manage the production from renewables and distributed generation**
- **They will allow further interaction among all the users** that will be able to define locally the incoming and outgoing electricity flows
- **Enel is leading the European project ADDRESS** aimed at identifying the European standard for the new grid model



Enel is playing a leading role worldwide in the renewal of the electric grids thanks to the development of the smart meter already installed in 32 million houses

Smart grids possible pilot project: battery storage for renewable applications

- **Objective:** joint R&D effort to develop new systems for power storage (batteries with lower cost/lower weight) to enhance smart grids (distributed generation) and e-mobility
- **Expected output:** new higher energy-density battery units with lower costs
- **Possible players:**
 - **Enel** (end-user system integration approach)
 - Japanese **battery makers** (identification of possible partners under-going)
 - Japanese **battery materials supplier** (e.g. NITTO DENKO, preliminary discussion under-going)
- **Timing:** 3-5 years
 - Preliminary studies (6-9 months)
 - Pilot phase (1 year)
 - Implementation phase (1-3 years)