Italy-Japan Business Group

Plenary meeting – Working group Energy

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## Enel Group key figures 2008

### Key facts (including Endesa)

<table>
<thead>
<tr>
<th>Category</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Employees</td>
<td>83,000</td>
</tr>
<tr>
<td>Revenues</td>
<td>61 bn eur*</td>
</tr>
<tr>
<td>EBITDA</td>
<td>14 bn eur*</td>
</tr>
<tr>
<td>EBIT</td>
<td>9,5 bn eur*</td>
</tr>
<tr>
<td>Installed capacities</td>
<td>95 GW**</td>
</tr>
<tr>
<td>Countries</td>
<td>23</td>
</tr>
</tbody>
</table>

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

Present in all key steps of the energy value-chain: generation, distribution, sales
Enel Green Power: large renewable player well positioned in growth geographies
Capacity – 1H 2009; Total electricity production - 2008

North America
- 788 MW
- 1.8 TWh

Iberia
- 401 MW
- 0.8 TWh

Iberia
- 2.560 MW
- 10.9 TWh

France
- 28 MW
- 0.01 TWh

Romania
- Pipeline
- 127 MW
- 0.2 TWh

Bulgaria
- Pipeline
- 667 MW
- 3.5 TWh

Latin America
- 10.9 TWh
- 28 MW
- 0.01 TWh

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

- **Residential rooftop** (<6 kW)
- **Ground** (>1.000 kW)
- **Commercial rooftop** (6-1.000 kW)
- **Large scale**

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)