TCFD and BoE Conference on Climate Scenarios, Financial Risk and Strategic Planning

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October 31, 2017
1. Enel current footprint and key prospective highlights
2. What does ‘sustainability’ mean for the Enel Group
3. The use of scenarios in short-medium and long term strategic planning
4. Enel and the TCFD
What does ‘sustainability’ mean for the Enel Group

The use of scenarios in short-medium and long term strategic planning

Enel and the TCFD
Enel current footprint
A global and diversified operator

- ~40 €bn Regulated Asset Base
- ~65 mn distribution end users
  - #1 in Italy, Spain, Chile, Peru
  - #2 in Argentina, Colombia

- ~19.2 mn free retail customers
  - #1 in Italy and Spain

- ~39 GW renewable capacity
- Global leadership in renewables

- ~47 GW thermal capacity
- Highly flexible and efficient generation fleet

1. As of 1H2017
2. Consolidated and managed capacity including 24.9 GW of large hydro
3. Presence with operating assets
Enel current footprint
A global and diversified operator¹

North & Central America
- 0.8 €bn (5%)

Italy
- 6.6 €bn (43%)

Iberia
- 3.6 €bn (23%)

Europe
- 0.8 €bn (5%)

Latin America
- 3.6 €bn (24%)

2016 Group ordinary EBITDA
- 15.2 €bn

Networks | Renewables | Thermal generation | Retail
---|---|---|---
47% | 17% | 26% | 10%

Countries of presence²
- Europe: 49%
- North & Central America: 30%
- Latin America: 10%
- Iberia: 22%

1. As of 2016. Breakdown excludes -0.1 €bn from holding and services
2. Presence with operating assets

~75% regulated / quasi-regulated
Enel current footprint and key prospective highlights
Operating targets by business

Networks
- End users (mn)
  - 62.2 (2016A) to 64.0 (2019E)
- Smart meters (mn)
  - 41.2 (2016A) to 48.1 (2019E)

Retail
- Free customer base¹ (mn)
  - 18.3 (2016A) to 34.0 (2019E)
- Energy sold² (TWh)
  - 213 (2016A) to 293 (2019E)

Renewables
- Managed capacity (GW)
  - 37.8 (2016A) to 45.7 (2019E)
- Consolidated capacity (GW)
  - 1.9 (2016A) to 14.2 (2019E)
- Large hydro (GW)
  - 11.0 (2016A) to 25.0 (2019E)

Thermal generation
- Installed capacity³ (GW)
  - 46.8 (2016A) to 36.5 (2019E)

Net production
- 2016A: 262 TWh
- 2019E: 230 TWh
- 46% emission free
- 56% emission free

Notes:
1. Includes only power and free gas customers
2. Free market + PPAs
3. Includes nuclear in Iberia
The use of scenarios in short-medium and long term strategic planning

What does “sustainability” mean for the Enel Group

Enel and the TCFD

Enel current footprint and key prospective highlights
# 2017-2019 strategic plan pillars

## A sustainable strategy (1/2)

<table>
<thead>
<tr>
<th>Digitalization</th>
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</thead>
<tbody>
<tr>
<td><strong>Industrial pillars</strong></td>
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<tr>
<td>Operational efficiency</td>
</tr>
<tr>
<td>Industrial growth</td>
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<tr>
<td>Group simplification</td>
</tr>
<tr>
<td>Active portfolio management</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th><strong>ESG pillars</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Engaging the local communities</td>
</tr>
<tr>
<td>Engaging the people we work with</td>
</tr>
<tr>
<td>Aiming at operating efficiency and innovation</td>
</tr>
<tr>
<td>Decarbonizing the energy mix</td>
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</tbody>
</table>

| Customer focus |
## 2017-2019 strategic plan pillars

A sustainable strategy (2/2)

<table>
<thead>
<tr>
<th>United Nations Sustainable Development Goals (SDGs)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. <strong>No Poverty</strong></td>
</tr>
<tr>
<td>2. <strong>Zero Hunger</strong></td>
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<tr>
<td>3. <strong>Good Health and Well-being</strong></td>
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<tr>
<td>4. <strong>Quality Education</strong></td>
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<tr>
<td>5. <strong>Gender Equality</strong></td>
</tr>
<tr>
<td>6. <strong>Clean Water and Sanitation</strong></td>
</tr>
<tr>
<td>7. <strong>Affordable and Clean Energy</strong></td>
</tr>
<tr>
<td>8. <strong>Decent Work and Economic Growth</strong></td>
</tr>
<tr>
<td>9. <strong>Industry Innovation and Infrastructure</strong></td>
</tr>
<tr>
<td>10. <strong>Reduced Inequalities</strong></td>
</tr>
<tr>
<td>11. <strong>Sustainable Cities and Communities</strong></td>
</tr>
<tr>
<td>12. <strong>Responsible Consumption and Production</strong></td>
</tr>
<tr>
<td>13. <strong>Climate Action</strong></td>
</tr>
<tr>
<td>14. <strong>Life below Water</strong></td>
</tr>
<tr>
<td>15. <strong>Life on Land</strong></td>
</tr>
<tr>
<td>16. <strong>Peace and Justice Strong Institutions</strong></td>
</tr>
<tr>
<td>17. <strong>Partnerships for the Goals</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Enel commitments to the global SDGs</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. <strong>Quality Education</strong></td>
</tr>
<tr>
<td>400,000 people by 2020</td>
</tr>
<tr>
<td>7. <strong>Affordable and Clean Energy</strong></td>
</tr>
<tr>
<td>3 million people, mainly in Africa, Asia and Latin America by 2020</td>
</tr>
<tr>
<td>8. <strong>Decent Work and Economic Growth</strong></td>
</tr>
<tr>
<td>1.5 million people by 2020¹</td>
</tr>
<tr>
<td>13. <strong>Climate Action</strong></td>
</tr>
<tr>
<td>&lt; 350 gCO2 /kWheq by 2020</td>
</tr>
</tbody>
</table>

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1. Target upgraded from the original 0.5 billion people commitment that was achieved in 2016
Enel sustainability footprint
ESG market engagement

**Equity - Shareholding structure**

- Institutional Investors: 54% of TSO
- Other Institutional Investors: 8%
- Retail: 24%
- MEF: 22%

**Equity - SRI investors geographic breakdown**

- SRI Investors: 8% of TSO
- Italy: 50%
- UK: 34%
- Rest of Europe: 12%
- Rest of the world: 2%

**Fixed income – Green bond total allocation geographic breakdown**

- Investor allocation by region
  - Italy: 79%
  - UK: 16%
  - Rest of Europe: 5%

**Predominance of long-only investors**

1. As of December 2016. Share capital breakdown.
2. As of December 2016.
3. As of January 2017. Data courtesy of Crédit Agricole
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How do we use scenario modelling?

The short/long term analysis and investment decisions are taken through an integrated process of scenarios ensuring the internal consistency for several aims and different time-horizons.
Main risks with potential impact on Strategic Group targets

1. Risks related to the macroeconomic scenario volatility and operations; 2. Risks related to the regulatory and business framework

### Stochastic Valuation

**Macro & Energy hypothesis**
- Commodity
- Brent / Gas / Coal
- Macroeconomic
- Electricity Demand
- CPI
- Interest Rates
- CO2
- Exchange Rates

### Deterministic Valuation

**Operations & Execution**
- Plant Availability
- Natural Resources
- Availability
- Commercial
- Credit Risk

**Regulatory**
- Italy
- Spain
- East Europe
- Latin America
- United States
- South Africa

**Execution**
- Definition of operative efficiency plan
- Organic growth Plan

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1. Impact on Ebitda and Net Income
2. Impact on debt and rating

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1. Risks related to the macroeconomic scenario volatility and operations; 2. Risks related to the regulatory and business framework
The Business Plan is tested across a range of scenarios and shock events

The EBITDA risk evaluation

- The base case represents the Industrial Plan scenario (Plan A)
- The alternative case (Plan B) will be tested to check if the higher/lower EBITDA is a consequence higher/lower risk profile
- We stress the EBITDA through a range of possible shocks to the baseline assumptions

The distribution asymmetry implies higher probability of potential upside respect to the base target

The analysis outcome shows the share of potential earnings at risk
## Long term scenarios: three alternative frameworks to base our long term strategy

### Three different scenarios

<table>
<thead>
<tr>
<th>Areas</th>
<th>Variables</th>
<th>Long Freeze</th>
<th>Medium</th>
<th>Go green</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Macro-economy</strong></td>
<td>Economic growth</td>
<td>Low and volatile</td>
<td>Weak return to pre-crisis growth, but with cycles</td>
<td>Sustainable long term growth</td>
</tr>
<tr>
<td></td>
<td>Global imbalance</td>
<td>Rising imbalances</td>
<td>Current imbalance trend to a LT equilibrium</td>
<td>Decreasing imbalances</td>
</tr>
<tr>
<td></td>
<td>Social acceptance</td>
<td>Increasing opposition</td>
<td>Public acceptance is an issue in some geographies</td>
<td>Significant acceptance</td>
</tr>
<tr>
<td><strong>Energy and natural resources</strong></td>
<td>Scarcity &amp; geopolitics</td>
<td>Increasing scarcity and geopolitical tensions</td>
<td>Scarcity and geopolitical tensions around gas market</td>
<td>Scarcity and geopolitical tensions is not an issue</td>
</tr>
<tr>
<td></td>
<td>Role of fossil fuels</td>
<td>Energy mix based on fossil fuels (incl. Coal)</td>
<td>Energy mix based on on natural gas. RES: mature technologies</td>
<td>Sustained development of RES (proven + new developments)</td>
</tr>
<tr>
<td></td>
<td>Role of RES</td>
<td>=</td>
<td>=</td>
<td>=</td>
</tr>
<tr>
<td></td>
<td>Prices of commodities</td>
<td>More and more, prices experience spikes</td>
<td>Increasing prices, with some spikes fo gas</td>
<td>Coal price decrease, energy prices increase</td>
</tr>
<tr>
<td><strong>Energy and climate policy and regulation</strong></td>
<td>Governments’ role</td>
<td>Lack of a global agreement</td>
<td>Not a global agreement, but some regional mechanisms</td>
<td>Global agreement</td>
</tr>
<tr>
<td></td>
<td>CO2 prices</td>
<td>Low and stagnated prices</td>
<td>Medium prices (increasing in the LT)</td>
<td>High prices (quick increase)</td>
</tr>
<tr>
<td></td>
<td>CO2 emissions</td>
<td>Increasing emissions</td>
<td>Gradual reduction</td>
<td>Quick reduction</td>
</tr>
<tr>
<td><strong>Technology innovation</strong></td>
<td>Nuclear</td>
<td>Decline. More costs after Fukushima</td>
<td>Emerging countries, but once Fukushima crisis is over</td>
<td>Potential development in Emerging countries</td>
</tr>
<tr>
<td></td>
<td>CCS</td>
<td>Neither policies nor innovation allow it to develop</td>
<td>Slowdown. Only in the LT in case gas supply is not enough</td>
<td>Only if a technology breakthrough appears</td>
</tr>
<tr>
<td></td>
<td>RES</td>
<td>Stagnation in their development</td>
<td>RES in commercial stage will go on. Slowdown in new RES</td>
<td>Great development, with new RES</td>
</tr>
<tr>
<td></td>
<td>Smart grids, DG &amp; EV</td>
<td>No incentives (economic, demand) to foster them</td>
<td>Gradual development</td>
<td>Quick development</td>
</tr>
</tbody>
</table>

A recurring project to set up the Group long term strategy evaluating alternative evolutions on potential state of natures
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Climate Change: a project financed by Enel Group

Source: «On the traces of glaciers», Fabiano Ventura; Upsala Glacier
The climate and weather variables impacting our business

<table>
<thead>
<tr>
<th>Climate Variables</th>
<th>Extreme Events</th>
<th>Impact on Electric Variables</th>
</tr>
</thead>
<tbody>
<tr>
<td>Temperature</td>
<td>Hurricane and typhoons</td>
<td>Power consumption</td>
</tr>
<tr>
<td>Rain</td>
<td>Sea levels</td>
<td>Hydro generation</td>
</tr>
<tr>
<td>Storms</td>
<td>Water fall</td>
<td>Wind generation</td>
</tr>
<tr>
<td>Drought</td>
<td>Heat waves</td>
<td>Solar generation</td>
</tr>
<tr>
<td>Solar</td>
<td>Strong cold / heavy snow</td>
<td>Power Network</td>
</tr>
</tbody>
</table>

Source: Bloomberg

Chile

Temperature

<table>
<thead>
<tr>
<th>Year</th>
<th>Temperature (°C)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2001</td>
<td>16.0</td>
</tr>
<tr>
<td>2003</td>
<td>15.8</td>
</tr>
<tr>
<td>2005</td>
<td>16.3</td>
</tr>
<tr>
<td>2007</td>
<td>16.5</td>
</tr>
<tr>
<td>2009</td>
<td>15.0</td>
</tr>
<tr>
<td>2011</td>
<td>15.5</td>
</tr>
<tr>
<td>2013</td>
<td>16.4</td>
</tr>
<tr>
<td>2015</td>
<td>16.7</td>
</tr>
</tbody>
</table>

Temperature: +0.4%

Rainfall

<table>
<thead>
<tr>
<th>Year</th>
<th>Rainfall (mm)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2006</td>
<td>1000</td>
</tr>
<tr>
<td>2007</td>
<td>900</td>
</tr>
<tr>
<td>2008</td>
<td>800</td>
</tr>
<tr>
<td>2009</td>
<td>700</td>
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<td>2010</td>
<td>600</td>
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<tr>
<td>2013</td>
<td>300</td>
</tr>
<tr>
<td>2014</td>
<td>200</td>
</tr>
<tr>
<td>2015</td>
<td>100</td>
</tr>
<tr>
<td>2016</td>
<td>0</td>
</tr>
</tbody>
</table>

Actual vs Avg 20 years
This project aims to develop different climate simulations in order to enable Enel to carry out resilience analysis about its assets and its business.

The main keystones of the project: areas and topics to be addressed

### Countries
- Italy
- Latam
- Spain

### Weather Variables
- **Air and sea temperature**
  - Air temperature
  - Sea temperature
  - Annual average temperature
  - Cumulative winter/summer precipitation

- **Snow, Rain and frost days**
  - Annual precipitation
  - Precipitation pattern
  - Days of intense precipitation
  - Frost days
  - Snow coverage
  - Annual evaporation
  - Consecutive dry days

- **Wind and irradiation**
  - Ventilation
  - Irradiation
  - Summer days

- **Extreme events**
  - Frequency of droughts and impacts on hydro availability
  - Frequency and value of extreme rain and snow events
  - Frequency of extreme storm events

Research and development activities will set average values in each selected country/areas for the following parameters.
Parameters will be defined as difference related to the average data of the period 1990-2010 according to two chosen scenarios.

- Scenario IPCC 8.5
- Scenario IPCC 2.6

Time is set from 2020 to 2050 with a yearly frequency.

The scenarios will be developed until 2050.

Data results resolution will be:

- 12 x 12 km for Italy and Spain
- 25 x 25 km for South America

Duration

2 years starting from January 2018
1. Assess Physical & Transition Risks

2. Define how these risks impact our areas of operation

3. Quantify the impact of climate change on Enel business segments and assets and identify major risks & opportunities

- E-Distribution
- Global Thermal Generation
- Holding AFC
- Global Renewables
- Innovation & Sustainability