Enel Green Power

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Enel Group Introduction
Leader in the new energy world

1st network operator¹

World’s largest private player² in renewables

Largest retail customer base worldwide¹

73 mn end users

43 GW capacity²

46.5 GW capacity³

5.7 GW demand response

~ 64 mn customers⁴

¹ By number of customers. Publicly owned operators not included
² By installed capacity. Includes managed capacity for 4.2 GW
³ It includes nuclear
⁴ Includes customers of free and regulated power and gas markets
Enel Green Power

- Enters new markets
- Ensures industrial growth
- Reduces emissions

Key Features:
1. Geographically and technologically diversified
2. First mover in new markets
3. Flexible time to market
4. Innovation and sustainability as strategic pillars
Enel Green Power
Global Footprint

Key figures

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
<th>Managed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Capacity (GW)</td>
<td>38.3</td>
<td>40.9</td>
</tr>
<tr>
<td>Production (TWh)</td>
<td>81.7</td>
<td>89.0</td>
</tr>
</tbody>
</table>

Key financials (€bn)

<table>
<thead>
<tr>
<th></th>
<th>2017</th>
</tr>
</thead>
<tbody>
<tr>
<td>EBITDA</td>
<td>4.1</td>
</tr>
<tr>
<td>Opex</td>
<td>1.4</td>
</tr>
<tr>
<td>Maintenance capex</td>
<td>0.3</td>
</tr>
<tr>
<td>Growth capex</td>
<td>3.6</td>
</tr>
</tbody>
</table>

Countries of presence

- USA
- Canada
- Spain
- Italy
- Greece
- Romania
- Russia
- Mexico
- India
- Australia
- South Africa
- Brazil
- Colombia
- Peru
- Chile
- Guatemala
- Panama
- Costa Rica
- Argentina
- Marocco
- Ethiopia
- Germany
- Indonesia
- Kenya
- Singapore

Countries with advanced stage of development

- USA
- Canada
- Spain
- Italy
- Greece
- Romania
- Russia
- Mexico
- India
- Australia
- South Africa
- Brazil
- Colombia
- Peru
- Chile
- Guatemala
- Panama
- Costa Rica
- Argentina
- Marocco
- Ethiopia
- Germany
- Indonesia
- Kenya
- Singapore

Consolidated capacity (GW) 7.4 2.3 27.8 0.8
Managed capacity (GW) 1.8 0.4 0.3 0.1
2018 – Main achievements

- **Built plants (MW)**
  - Wayra - Perú 132 MW
  - Villanueva – Mexico 828 MW
  - Bungala One – Australia 137 MW
  - Horizonte - Brazil 108 MW
  - Diamond Vista USA - 100 MW
  - Rattlesnake USA - 118 MW
  - Adobe Rattlesnake USA - 10 MW
  - Hilltopper USA - 9.28 MW
  - BBVA Primoral ESP - 26 MW
  - Magdalena MEX - 112 MW
  - Primoral ESP - 26 MW
  - High Lonesome USA - 295 MW
  - Hilltopper USA - 14.12 MW
  - EntNA High Lonesome USA - 110 MW

- **January**
  - KÖHLER Diamond Vista USA - 100 MW

- **February**
  - KOHLER Rattlesnake USA - 118 MW

- **March**
  - Adobe Rattlesnake USA - 10 MW

- **April**
  - India Awarded – wind tender 285 MW

- **May**
  - Zambia Start of the construction site Ngoye (34 MW)
  - Morocco PPA signature Mideit (180 MW)
  - South Africa Financial Close (735 MW)

- **June**
  - Hilltopper USA - 14.12 MW

- **July**
  - Primoral ESP - 26 MW

- **August**
  - Magdalena MEX - 112 MW

- **September**
  - Mexico Closing KINO 1.8 GW
  - Australia Awarded – PV tender 34 MW

- **Q4**
  - South Africa Financial Close (735 MW)

- **Financial Close (735 MW)**
  - Zambia
  - Morocco
  - South Africa

- **Start of construction site Ngoye (34 MW)**
  - Zambia
  - Morocco

- **Awarded – wind tender 285 MW**
  - India

- **Awarded – PV tender 34 MW**
  - Australia

- **Awarded – wind tender 285 MW**
  - India

- **Awarded – wind tender 285 MW**
  - India
The main challenges

- Support growth by ensuring construction and delivery of the plants
- Increase of the average size of the Power Plants
- Construction of power plants in remote areas
- Construction activities to be managed across 5 continents
- Continuous research and implementation of technologically advanced and innovative solutions in all sites
E&C (R)evolution – new constructions techniques and digitalization
1.280 plants  +100 TWh produced (2018)

Note: 31.12.2018 data including plants managed in BSO. Argentina not including 35 MW of generators.
New businesses

e-Industries
- Consulting and auditing service
- Distributed generation on/off site
- Energy efficiency
- Demand response and demand side management

e-City
- Smart lighting
- Fiber optic wholesale network
- Distributed generation & energy services
- Demand response and demand side management

e-Home
- Installation, maintenance and repair services
- Automated home management
- Financial services
- Home 2 Grid

e-Mobility
- Charging infrastructure (public & private)
- Maintenance and other services
- OEM back-end integration
- Vehicle Grid Integration

Flexibility
EnerNOC, Demand Energy Network, and eMotorwerk are now

Demand Response (DR)
- JV with Marubeni “EnerNOC Japan”
- Manage >7GW of dispatchable DR capacity today
- ~15,000 C&I facilities participating in DR
- Operate DR in nearly all liberalised global markets
- Focus on load curtailment and backup generation

Virtual Power Plants (VPPs)
- Distributed renewable generation
- Battery optimization
- Smart charging and vehicle-to-grid
- Microgrid controls
Working with 33 TSOs and Utilities in 12 countries, we operate more than 50 DR/VPP programs globally.

- **Canada**: Ontario Independent Electricity System Operator; Alberta Electric System Operator
- **Poland**: Polskie Sieci Elektroenergetyczne S.A.
- **Ireland**: Eirgrid
- **United States**: PJM Interconnection; AEP I&M; FirstEnergy; PECO; ISO New England; New York ISO; ConEdison; Consumers Energy; ISO New England; Tennessee Valley Authority; Louisville Gas & Electric and Kansas Utilities; Tampa Electric Company; Electric Reliability Council of Texas; Midwest Energy; PacifiCorp; Pacific Gas and Electric; Southern California Edison;
- **Korea**: Korea Power Exchange
- **UK**: National Grid, SmartestEnergy
- **Italy**: Terna
- **Japan**: Kyushu Electric Power Company, Tohoku Electric Power Company, KEPCO, TEPCO
- **Taiwan**: Taiwan Power Company
- **New Zealand**: Transpower
- **Australia**: Australian Electricity Market Operator; ERM Power Retail; AusNet

*Estimated market share*

*Market share based on Enel X estimates for most recent tenders*

**We have a small team in Taiwan developing the market but are not currently commercially active**
**Summary of Japan DR Program – 1’ Reserve**

Standalone **Emergency DR Program** procured through annual auction by 5 regional system operators. We are present in 4 TDSO territories.

**Procurement Body**

- **Generation**: deregulated
- **TDSO**: regulated
- **Retail**: deregulated

Network departments or TDSO of Big 10 EPCOs, are responsible for procuring **1’ Reserve** through annual auction to maintain system reliability.

*TDSO = Transmission and Distribution System Operator

**Procurement Area**

5 out of 9 TDSOs

1. Tohoku
2. TEPCO
3. KEPCO
4. Chubu
5. Kyushu

**For Extreme Weather**

**Our DR Capacity**

<table>
<thead>
<tr>
<th>Year</th>
<th>MW</th>
</tr>
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<tbody>
<tr>
<td>2017</td>
<td>60</td>
</tr>
<tr>
<td>2018</td>
<td>165</td>
</tr>
<tr>
<td>2019</td>
<td>196*</td>
</tr>
</tbody>
</table>

*Currently contracting with TDSOs

**Resource Types (MW)**

- Enel X DR, 165
- Pumped-Hydro, 62
- LNG, 153
- Oil, 146.9
- Other DR, 795

DR represents 70% of 1’ Reserve resources in 2018

Source: EGC

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06/03/2019
### Corporate PPA business

- **Financial PPA**: 
- **Sleeved PPA**: 
- **Physical PPA**: 
- **EAC**: 

+ **Regulated Tenders**

#### Some PPA Partners
- Starbucks
- ABInBev
- Heineken
- Nestle
- BBVA
- HSBC
- Facebook
- Google
- KOHLER

#### PPAs Signed: 5.5 GW

<table>
<thead>
<tr>
<th>Year</th>
<th>C&amp;I</th>
<th>Intragroup</th>
<th>Utility</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2014</td>
<td>0.2</td>
<td>0.3</td>
<td>0.1</td>
<td>0.6</td>
</tr>
<tr>
<td>2015</td>
<td>0.3</td>
<td>0.4</td>
<td>0.2</td>
<td>0.9</td>
</tr>
<tr>
<td>2016</td>
<td>0.4</td>
<td>0.5</td>
<td>0.3</td>
<td>1.2</td>
</tr>
<tr>
<td>2017</td>
<td>0.5</td>
<td>0.6</td>
<td>0.4</td>
<td>1.5</td>
</tr>
<tr>
<td>2018</td>
<td>0.6</td>
<td>0.7</td>
<td>0.5</td>
<td>1.8</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.1</strong></td>
<td><strong>1.8</strong></td>
<td><strong>1.1</strong></td>
<td><strong>4.0</strong></td>
</tr>
</tbody>
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**NOTE**: The data represents the total GW for Corporate PPA and includes various components such as C&I, Intragroup, and Utility.
Strategy pillars
Shared value creation within company, environment & communities

Innovation

Sustainability
Sustainability

The Enel Green Power sustainable ecosystem

Local Communities
NGO and Social Enterprises

To extend CSV across the Company boundaries, widening our ecosystem

Clients
Suppliers

Sustainability pillars full implementation

Nexus water, food, energy

CSV projects in emerging countries

Partnership with multilateral organizations

Sustainable Finance
Enel Green Power 2019-2021 Plan

Renewables are the driving force of growth

- Higher investments to build 11.6 GW additional capacity
- Focus on markets with integrated presence & on developed countries
- Value creation through decarbonization & integration with retail portfolio
- Maximization of portfolio returns

**Asset development capex**¹ 2019-21

- 10.6 €bn

**Additional capacity by geography**

- ~11.6 GW²

**By technology**

- Italy 70%
- South America 28%
- North & C. America 3%
- Iberia 4%
- Europe & NA 15%
- Africa, Asia & Oceania 16%

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1. Includes 1.6 €bn BSO capex
2. Of which 1.8 GW related to BSO and 0.8GW related to JVs.
Enel Green Power 2019-2021 Plan
Operating risk: renewables growth already significantly addressed

2019-21 Additional capacity addressed\(^1\) (GW)

<table>
<thead>
<tr>
<th>Target additional capacity</th>
<th>Addressed</th>
<th>Residual target</th>
</tr>
</thead>
<tbody>
<tr>
<td>11.6</td>
<td>~60% addressed</td>
<td>~7</td>
</tr>
<tr>
<td>~7</td>
<td>~5</td>
<td></td>
</tr>
</tbody>
</table>

Coverage by yr

- 2019: 91%
- 2020: 71%
- 2021: 34%

Pipeline by geography and technology\(^2\) (GW)

- Italy and Iberia: 24%
- South America: 21%
- Europe & North Africa: 45%
- North & C. America: 7%
- Asia/Australia: 3%

Total pipeline / residual target

~ 4x

Short term pipeline\(^3\) / residual target

~ 3x

1. It includes managed capacity
2. As of September 2018
3. Includes 2019-2021 CODs only
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