

# ACCIONA ENERGY

## BUILDING A SUSTAINABLE ENERGY SYSTEM FOR THE WORLD

ACCIONA Energy, with a 20-year track record, is the world's largest renewables-only power generator. The company is positioned as a key actor at the forefront of the global commitment to stop climate change, materialised in the need of transforming the current energy model to ensure a secure energy supply that is cost-competitive and environmentally friendly.



**MORE INFORMATION**

visit ACCIONA Energy's website:  
[www.accion-energy.com](http://www.accion-energy.com)

### ACCIONA ENERGY

- WIND
- SOLAR PHOTOVOLTAIC
- HYDROELECTRIC
- SOLAR THERMOELECTRIC
- BIOMASS

- ▶ Sound experience in the main renewable technologies and a focus on the most competitive energies: onshore wind and solar photovoltaic.
- ▶ Our assets cover the entire value chain.
- ▶ Sale of energy, capacity and certificates of renewable origin.
- ▶ Supply of 100% renewable electricity.
- ▶ Services to third parties.

### BUSINESS MODEL

**100 % RENEWABLE**

- Leader of the Top 100 Green utilities ranking for the third consecutive year

**DIVERSIFIED**

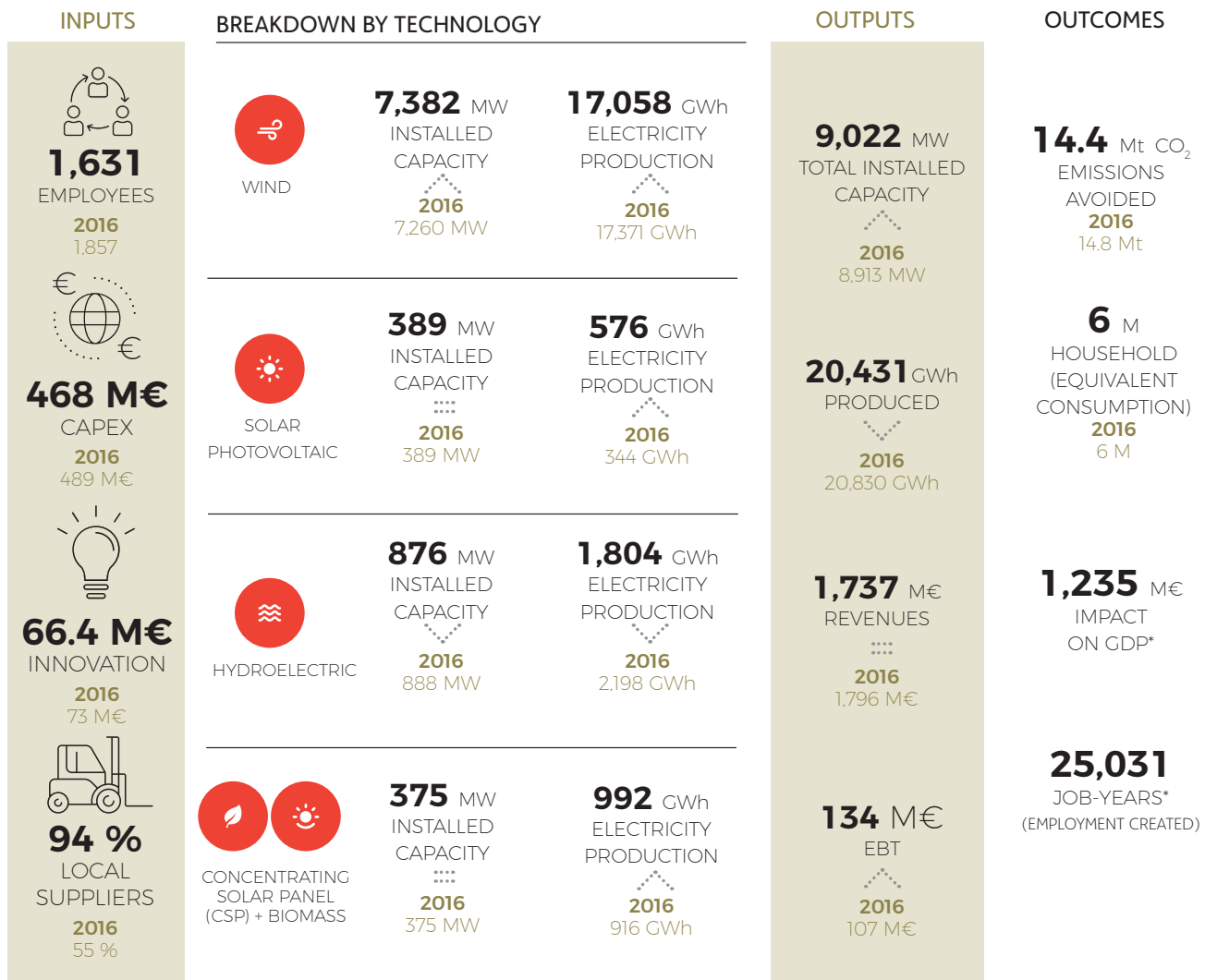
- 44 % of power generation EBITDA in 2017 was from outside Spain
- 47 % of construction in 2018 is photovoltaic
- Two new storage plants

**EXPANDING**

- 1,263 MW under construction in 2018

## ACCIONA ENERGY IN 2017

ONE OF THE SOUNDEST TRACK RECORDS IN THE INDUSTRY, WITH A LARGE OFFER OF COMPETITIVE RENEWABLE PRODUCTS



\* According to ACCIONA Energy's specific socioeconomic impact measurement methodology; scope: the countries where we operate; timescale: 2017.

### OBJECTIVES 2018



## THE VALUE OF ACCIONA ENERGY

### KEY SUCCESS FACTORS

#### 100 % RENEWABLE

Only clean energy

- Top 1 of the Green Utilities ranking worldwide for the third consecutive year<sup>(1)</sup>.
- The company is recognised as a global sustainable energy player whose activity contributes to avoiding CO<sub>2</sub> emissions into the atmosphere.
- Actively fighting climate change in all our operations.
- Participation in carbon markets and clean development mechanisms (CDM).

#### FOCUS ON THE MOST EFFICIENT TECHNOLOGIES

Proven ability in the main renewable technologies

- Extensive experience and proven ability in the main renewable technologies.
- Future portfolio growth is concentrated in wind and photovoltaic, the technologies that are most mature and most competitive.
- In addition to wind and photovoltaic, it also has solar thermoelectric, biomass and hydroelectric assets.

#### EXTENSIVE EXPERTISE

Horizontal knowledge and greater reliability throughout the value chain

- Accumulated experience in a fast-growing sector with many new players and a diversity of approaches.
- In-depth knowledge of the entire value chain, from project development through engineering and construction, operation and maintenance to energy management and sale, in different regulatory and financial environments.

#### A GLOBAL COMPANY

Gaining traction in strategic markets

- Owned assets in 15 countries on five continents in order to maintain the focus on profitable growth.
- Development of multidisciplinary teams that combine talent with local and international knowledge.

#### ENERGY SALES

The division evaluates and manages the social and environmental implications of its projects for the environment and communities.

- Sale of energy from owned assets and other producers we represent.
- Diversification in terms of products (energy, capacity, certificates of renewable origin...).
- Diversification in terms of offtakers, combining PPAs obtained in public auctions with sales at FiT, corporate PPAs, etc.
- Promotion of corporate PPAs with customers who want a competitive, reliable and guaranteed renewable supply to reduce their carbon footprint and energy costs.
- Offer of flexible transparent products adapted to each customer.
- 100% renewable origin accredited in Spain by the CNMC (the National Commission on Markets and Competition).

(11) 'New Energy Top 100 Green Utilities' ranking table published annually by Energy Intelligence, an independent consultancy specialising in energy markets.

**MARKET LEADER IN INNOVATION APPLIED TO BUSINESS**

A permanent focus on developing new technologies for the business

- Permanent objective of maximising operational efficiency: through new construction techniques, application of big data and digital transformation, etc.
- Greater competitiveness derived from cost cutting and continuous progress in maximising output.
- Pioneers in grid integration and storage.

**GOOD CORPORATE CITIZENSHIP**

Creating value at a local level and contributing to progress

- Contribution to local development through training, health, culture and sports, and self-employment programmes in the countries in which it operates.
- Assistance to improve basic community services in developing countries.
- Analysis of ACCIONA Energy's socioeconomic footprint in the countries where it operates.

**LONG-TERM VIEW**

A reliable company that is committed to the future

- A key player in an electrical system with an accelerating renewable presence.
- Projects are undertaken for the long term: we develop projects in order to build, maintain and operate them.
- Selective focus on attractive markets.
- Well positioned to materialise the objectives of the Paris Agreement to achieve a decarbonised economy. We are driving the energy transition towards renewables.

### AN AGILE AND CUSTOMIZED RESPONSE, ADAPTED TO CLIENTS AND THE SURROUNDINGS

ACCIONA Energy adapts its projects to the specific requirements and needs of each client, in both financial and operational terms, as well as the environmental conditions, regulation and the local context.

Construction commenced in 2017 of two wind farms that evidence the division's immediate adaptation to the environment, by optimising resources and offering competitive proposals.

**EL CORTIJO - MEXICO**

Wind speeds and cost conditions in the region enable the company to install **concrete towers**.

- Location: Reynosa, Tamaulipas
- Capacity: 183 MW
- Wind turbine: 61 Nordex 3 MW turbines
- Tower: concrete, 120 m hub height

**MT GELLIBRAND - AUSTRALIA**

Cost optimisation, thanks to the possibility of developing and installing **metal towers** faster.

- Location: Colac, Victoria
- Capacity: 132 MW
- Wind turbine: 44 Nordex 3 MW turbines
- Tower: steel, 87.5 m hub height

2017 MILESTONES: INCREASED INSTALLED CAPACITY AND ENHANCED COMMERCIAL POSITIONING

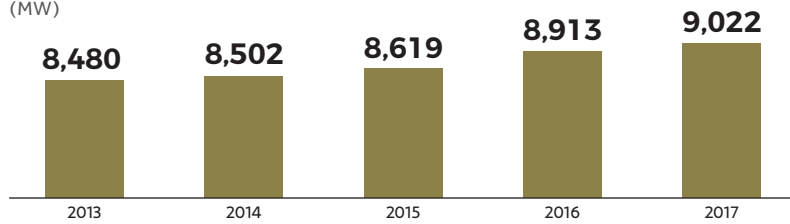
Constant and assured growth

ACCIONA Energy continued to expand total installed capacity in 2017, with 9,022 MW in operation and an additional 1,263 MW to be built in 2018. This growth in installed capacity is diversified in terms of technology (mainly wind and photovoltaic) and geography.

In the last twelve months, the portfolio has increased by 110 MW (1.1 %) with respect to 2016 year-end due to the addition of 84 MW of wind capacity in Mexico, 38 MW in Canada and 75 MW in India<sup>(12)</sup>.

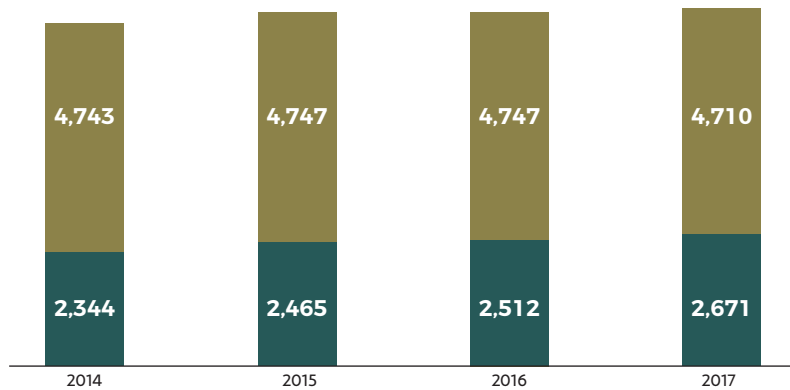
2018 is an inflection point for the company, since it has over 1.2 GW under construction. This increase will bring the division closer to the 10,500 MW target set out in its strategic plan for 2020.

Total installed capacity (MW)



Growth is international and diversified in terms of technologies

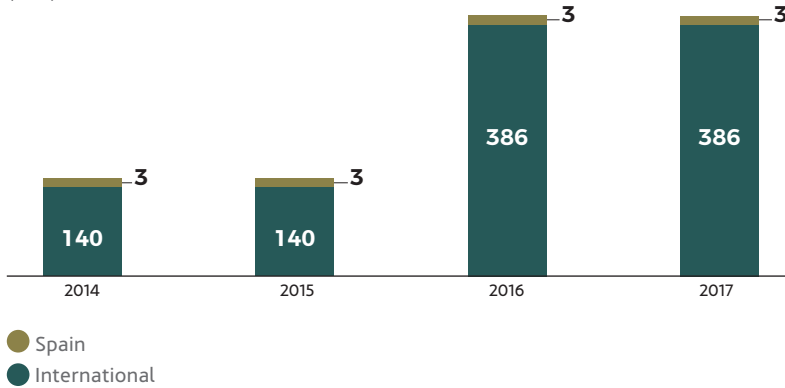
Installed wind capacity (MW)



- Wind power in Spain
- Wind power in other countries

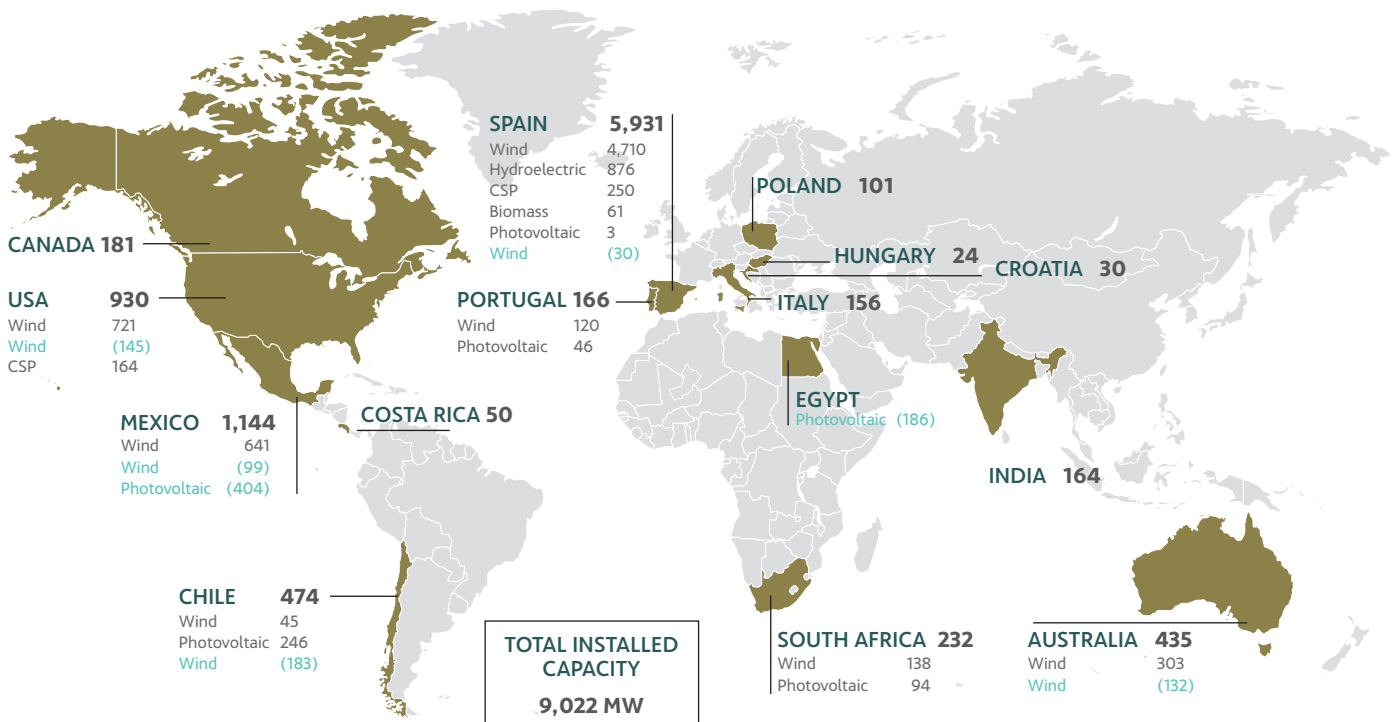
(12) During the year, 49 MW were derecognised in Spain as a result of repowering the El Cabrero wind farm (30 MW will become operational in 2019 as a result of that repowering) and the expiration of three hydroelectric concessions.

**Installed photovoltaic capacity (MW)**



A key actor in international markets with a geographically diversified footprint and owned assets in 15 countries

**Installed capacity in MW as of 31.12.2017 (photovoltaic: MWp)**



Company-owned facilities. Wind, except where indicated otherwise.

(XXX) Capacity under construction in 2018

Note 1. Divestment of 250 MW of solar thermoelectric capacity in Spain in 2018

Note 2. El Cortijo 183 MW (Mexico), under construction as of 30.05.2018, but with 84 MW installed (non-operational) as of 31.12.2017

#### Diversification in terms of offtakers

During 2017, the division continued to develop its commercial capabilities so as to boost growth by combining different energy sales mechanisms (FiT, auctions, corporate PPAs, etc.).

Due to renewables' technical maturity and competitiveness, corporations are increasingly interested in acquiring renewable energy directly from producers. ACCIONA Energy has an important competitive advantage in this regard because of its experience, reliability and professionalism. This situation is also aligned with the company's strategy of diversifying offtakers; consequently, in 2017 it focused on arranging more corporate PPAs while also participating selectively in auctions and diversifying mechanisms to ensure long-term sustainable investment.

ACCIONA Energy is uniquely placed to respond to companies' search for reliable, efficient long-term green energy supplies.

Specifically, following the contract signed in Chile with Google to supply its data centre, the main corporate PPA signed in 2017 was with the Chilean Falabella group.

#### Storage as a new business

ACCIONA Energy established Spain's first hybrid battery storage plant integrated into a grid-connected wind farm in Barásoain (Navarra). This initiative places the company at the forefront of solutions of this type, which aimed at facilitating the integration into the grid of renewables, whose production is variable, and managing renewable generation optimally.

Also in 2017, the division invested in the development and deployment of this technology through the creation of two software applications for full integration into the process of renewable energy management carried out at CECOER (Renewable Energy Control Centre), making it just another technology in our product portfolio, with all the advantages of centralised management and control integrated with the other clean technologies.

### Entrance into a market with great potential: Egypt

ACCIONA Energy is to build three company-owned photovoltaic plants in Egypt in partnership with the Swicorp renewable platform. Peak capacity will be 186 MWp and the approximate investment will amount to 180 million dollars.

This investment was subjected to exhaustive financial oversight using funding and multilateral underwriting via the World Bank in an innovative formula in terms of investment and risk mitigation. This and similar formulae open the doors to new markets with potential.

### Measuring ACCIONA Energy's socioeconomic impact

Since 2015, ACCIONA has been working to measure the socioeconomic and environmental impact that its projects produce in a given country, obtaining quantitative results as to the impact of the company's activity in terms of job creation (direct, indirect and induced) and the contribution to the country's GDP, in addition to contemplating other positive effects on the environment and communities.

In recent years, the socioeconomic impact of a number of energy projects has been measured in Mexico (Oaxaca II, III and IV, EURUS, Ventika I, II, and Ingenio wind farms), South Africa (Gouda wind farm and Sishen photovoltaic plant) and Chile (El Romero Solar photovoltaic plant).

The main advances in 2017 were as follows:

- Analysis of the impact of all of ACCIONA Energy's assets worldwide in 2017:
  - Global contribution to GDP: 1,235 M€
  - Contribution to job creation: 25,031 job-years (full-time equivalent job lasting one year).
- New socioeconomic footprint calculations for the entire life cycle of the San Roman wind farms in the United States and all of the assets in Australia (including Cathedral Rocks, Waubra, Gunning and Mt. Gellibrand).
- Continuing to compare with non-renewable technologies.

ACCIONA  
ENERGY TO  
BUILD THREE  
PHOTOVOLTAIC  
PLANTS  
IN EGYPT  
WITH A PEAK  
CAPACITY  
OF 186 MWP  
AT AN  
INVESTMENT  
OF  
APPROXIMATELY  
180 M USD



#### MORE INFORMATION

for details on the socioeconomic impact measurement in the main countries, see the "Where ACCIONA Energy Competes".



## HOW THE RENEWABLE ENERGY MARKET IS CHANGING

Growth in demand for electricity offers a promising future for ACCIONA Energy. Renewables have already achieved a high level of competitiveness compared with conventional energy, not only in terms of costs, but also in terms of technical capacity, reliability and quality; moreover, plant construction is faster, and creates more value.

**TREND:** Higher demand for electricity, coupled with development and economic growth<sup>13</sup>.



60 %

GROWTH IN DEMAND FOR ELECTRICITY IN 2016 - 2040

### OPPORTUNITY FOR ACCIONA

- Demand for reliable, good quality energy generators at competitive prices.
- Electrification of demand.

**TREND:** Focus on decarbonising energy<sup>13</sup>.



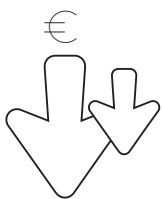
72 %

OF NEW GENERATION INVESTMENT TO 2040: SOLAR PHOTOVOLTAIC AND WIND

### OPPORTUNITY FOR ACCIONA

- Choice of prominent sustainable players.
- Regulatory frameworks tending to discourage fossil fuels.

**TREND:** Constant technological progress and competitive pressure to reduce costs. Renewables gaining in appeal<sup>13</sup>.



-47 %

REDUCTION IN WIND COSTS BY 2040

-66 %

REDUCTION IN SOLAR PHOTOVOLTAIC COSTS BY 2040

### OPPORTUNITY FOR ACCIONA

- Competitive advantage derived from extensive market experience.
- Know-how and technology diversification adapted to market conditions.

**TREND:** Rising private sales of renewable energy<sup>13</sup>.



19 GW

CORPORATE CLEAN ENERGY CONTRACTS SIGNED SINCE 2008

### OPPORTUNITY FOR ACCIONA

- Growing number of corporate clients demanding a reliable and sustainable supply.
- Commitment to provide recurring revenues over the long term.

(13) World Energy Outlook 2017-International Energy Agency. <https://www.iea.org/weo2017/>

**TREND:** Availability of funding<sup>14</sup>.



95.1 B\$  
GREEN BOND ISSUANCE  
IN 2016

#### OPPORTUNITY FOR ACCIONA

- Greater involvement of financiers and insurers. Some have announced the imminent divestment of polluting assets.
- Better risk/return ratios.
- Funding instruments, such as green bonds, that favour investment in renewables.

**TREND:** Distributed and more efficient renewable generation<sup>16</sup>.



5 %  
OF POWER GENERATION WILL  
BE SUPPLIED BY SMALL-SCALE  
SOLAR PV BY 2040

#### OPPORTUNITY FOR ACCIONA

- Development of on-grid and off-grid business models
- Cost reduction.
- Increased competitiveness.
- Higher load factors and more reliable solutions.

**TREND:** Establishment of even more competitive technologies<sup>15</sup>.

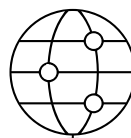


-73 %  
DECLINE IN THE PRICE OF  
LITHIUM BATTERIES BY 2040  
AND INVESTMENT IN ENERGY  
STORAGE THROUGH 2030

#### OPPORTUNITY FOR ACCIONA

- High economic potential.
- Development and innovation as growth drivers.

**TREND:** Towards the digital transformation<sup>17</sup>.



27 %  
PRODUCTIVITY GAIN OVER THE  
NEXT 5 YEARS DERIVED FROM  
DIGITALISATION

#### OPPORTUNITY FOR ACCIONA

- Reduction of operating costs through process automation and new operational analysis techniques.
- New technologies such as remote control and drones.
- Business opportunity due to the increase in electricity consumption driven by digitalisation in all areas (data centres).

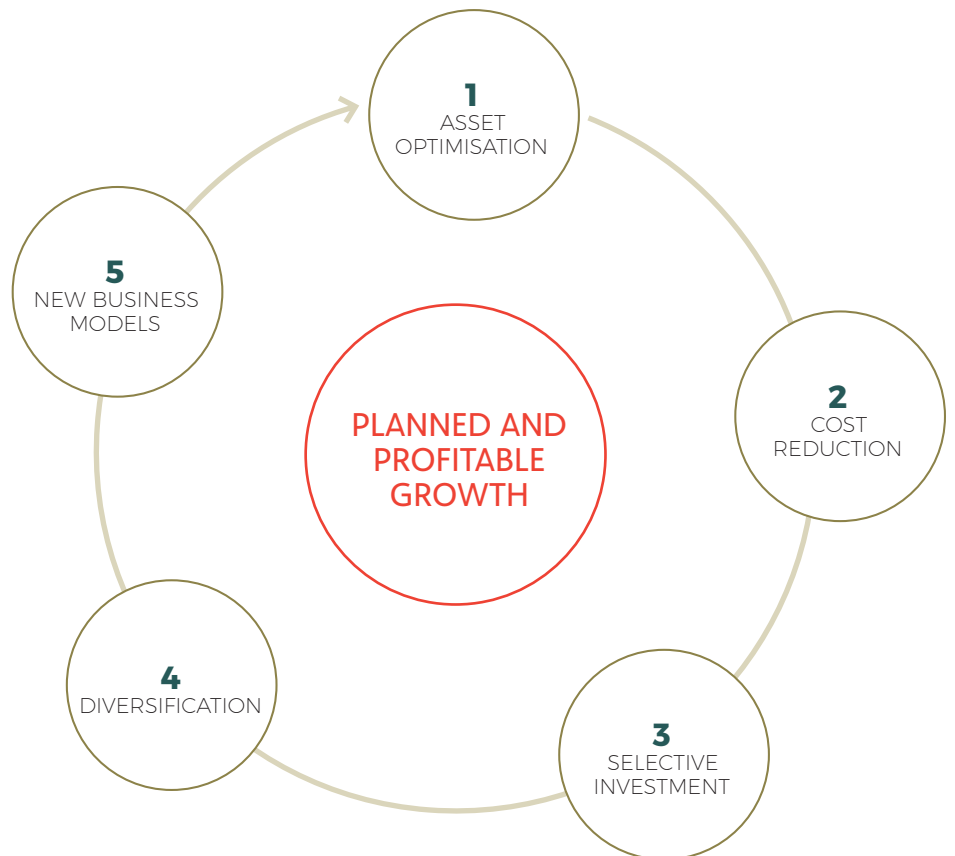
(14) Bloomberg New Energy Finance. Green bonds: 2016 in review

(15) Grand View Research. Microgrid Market Analysis By Power Source (Natural Gas, Combined Heat & Power (CHP), Solar PV, Diesel, Fuel Cell), By Product (Remote, Grid Connected, Hybrid), By Application, And Segment Forecasts, 2014 - 2025

(16) Bloomberg New Energy Finance. <https://about.bnef.com/blog/global-storage-market-double-six-times-2030/>

(17) Capgemini. The Digital Utility Plant: Unlocking value from the digitalisation of production 2017

## ACCIONA ENERGY STRATEGY COMMITTED TO THE ENERGY TRANSITION



SUSTAINABILITY AS THE CORE PHILOSOPHY, SUPPORTING THE CORPORATE GOAL OF REDUCING EMISSIONS AND REMAINING CARBON NEUTRAL SINCE 2016.

**1. MAXIMUM QUALITY** in managing our assets through innovation and continuous improvement:

- Maximise production while guaranteeing optimal availability.
- Minimise OPEX of operational plants using big data, remote control, drones, etc.
- Extension of lifespan.

**2. REDUCE OPEX AND CAPEX TO BECOME MORE COMPETITIVE.**

**3. SELECTIVE GROWTH**, ensuring a return on investment while seeking attractive markets worldwide.

**4. DIVERSIFICATION IN TERMS OF GEOGRAPHIES**, technologies and offtakers, with a lower risk of regulatory variations in specific markets, less dependence on the development of a single technology, lower risk in sales due to the portfolio effect, and greater versatility in the generation profile.

**5. NEW BUSINESS MODELS** that meet emerging needs of the electricity market: storage and distributed generation.

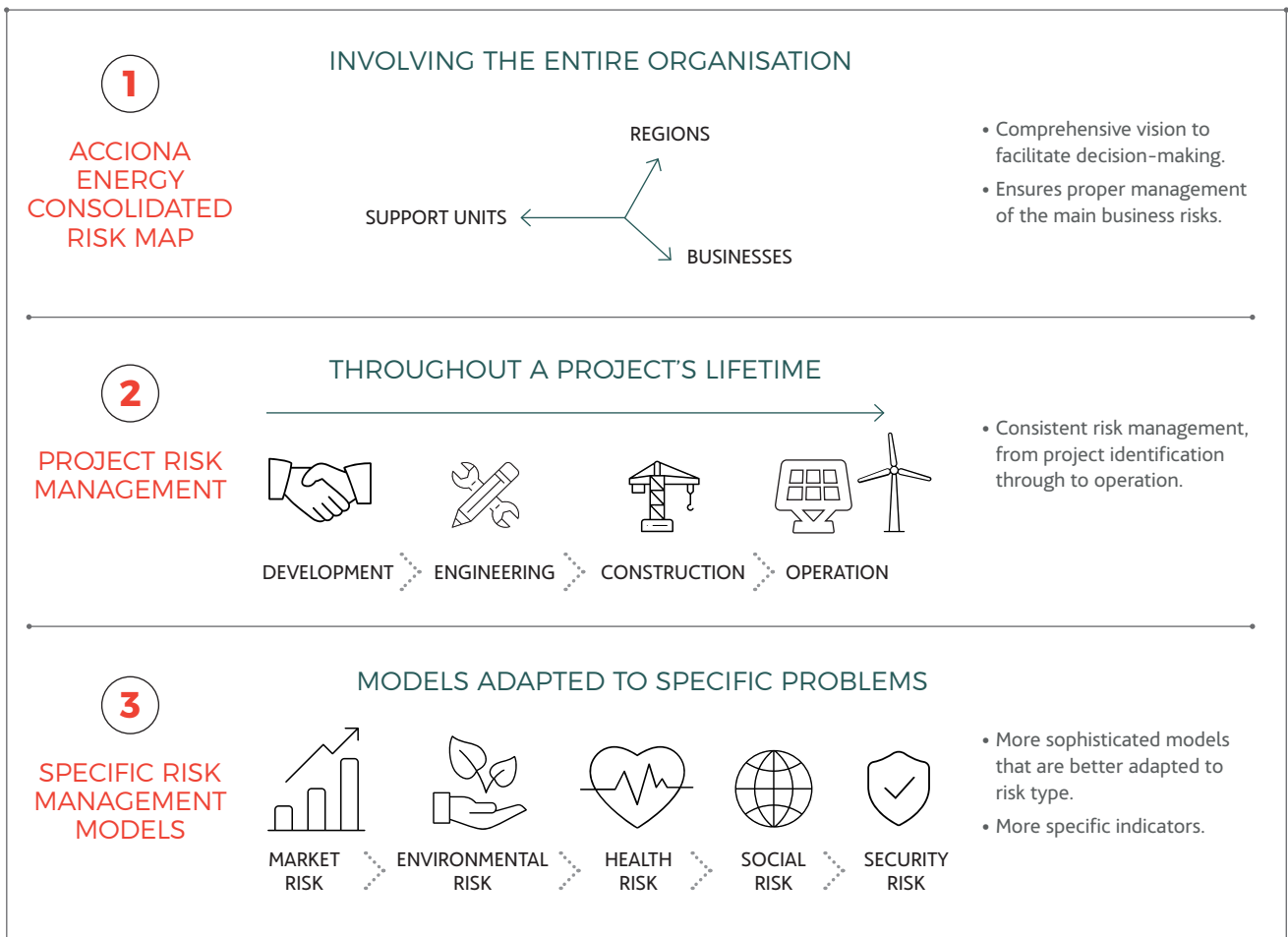
**RISK MANAGEMENT AT ACCIONA ENERGY**

The ACCIONA Energy division takes a range of measures to ensure optimal management of the risks it faces because of the nature of its business: regulatory, operational, market risks, etc. This model is reviewed continuously to ensure the adoption of industry best practices, contributing to better risk identification, evaluation and treatment.

The ACCIONA Energy risk management model experienced considerable development in 2017.

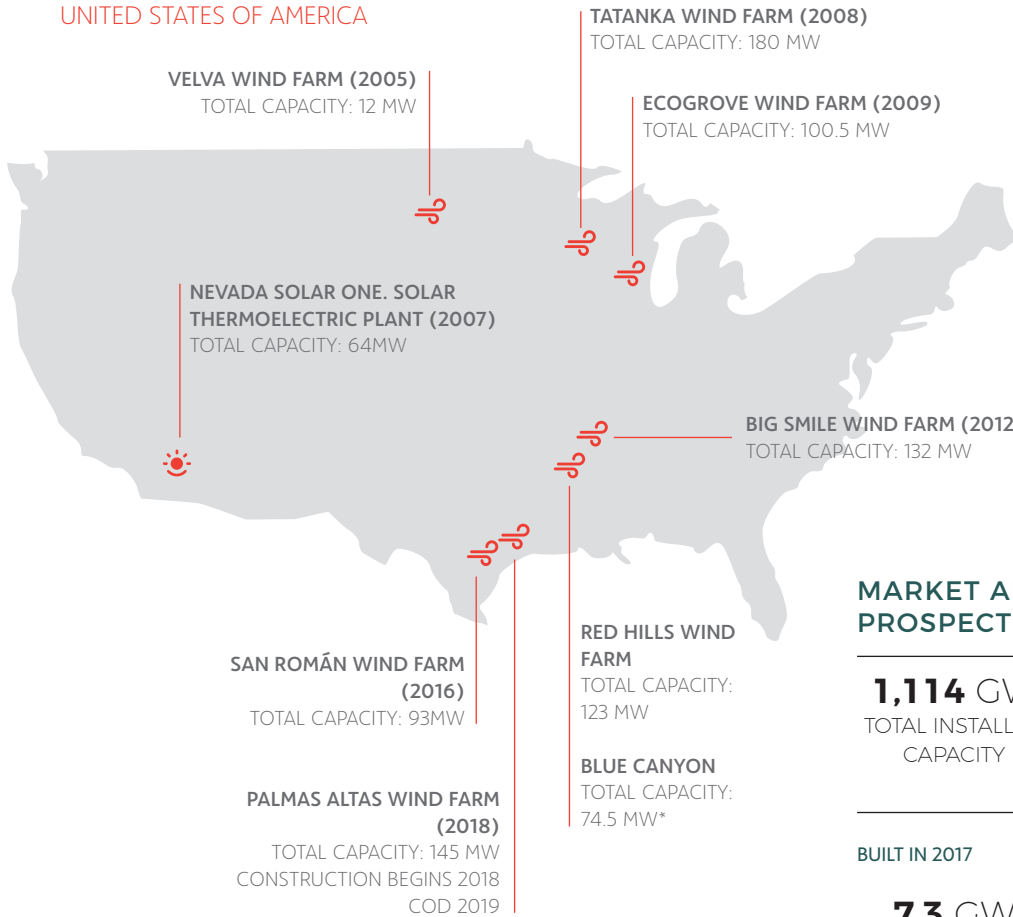
<p><b>RISK MANAGEMENT MILESTONES IN 2017</b></p>	<ul style="list-style-type: none"> <li>• Initiative to transform the project risk management process and improve standardisation throughout all stages of a project.</li> <li>• Creation of a new consolidated risk map for the division with greater involvement of all its units.</li> <li>• Implementation of a new market risk evaluation model.</li> <li>• Adoption of a new corporate model for controlling ESG risks (environment, social and governance).</li> </ul>
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**THREE INTER-RELATED LEVELS OF RISK MANAGEMENT**



## WHERE ACCIONA ENERGY COMPETES

### UNITED STATES OF AMERICA



### MARKET AND GROWTH PROSPECTS

**1,114 GW**  
TOTAL INSTALLED CAPACITY

**159 GW**  
ARE RENEWABLE (NOT INCLUDING HYDROELECTRIC)

#### BUILT IN 2017

**7.3 GW**  
WIND

**10.3 GW**  
SOLAR PV

#### IN 2017

**63 %** OF INSTALLED ELECTRICITY CAPACITY IS RENEWABLE

#### THROUGH 2025

**-28 %**  
GREENHOUSE GAS EMISSIONS (2005 BASELINE)

- Withdrawal from the Paris Climate Agreement at national level.
- Many states continue to combat climate change. 'We are still in' movement
- Tax reform: Less appeal for tax equity investors
- Higher protectionist tariffs on photovoltaic

IN 2017, ACCIONA INAUGURATED ITS 8TH WIND FARM

**785 MW**  
in operation

**1.5 M**  
tCO<sub>2</sub>  
avoided

IMPACT ON GDP (M€) IN 2017 \*\*  
**147.73**

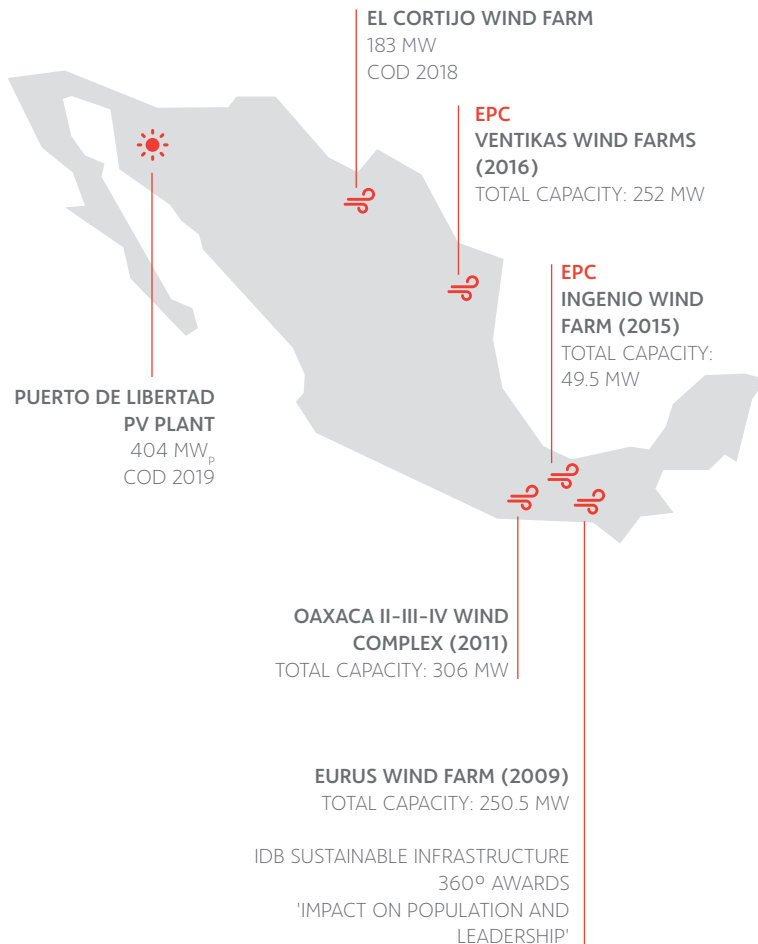
IMPACT ON EMPLOYMENT (JOB-YEAR) IN 2017 \*\*  
**1,462**

\* ACCIONA Energy has a minority stake

\*\* According to ACCIONA Energy's specific socioeconomic impact measurement methodology.

Job-year: a full-time equivalent job lasting one year.

MEXICO



**641 MW**  
in operation

**1.04 M**  
tCO<sub>2</sub>  
avoided

IMPACT ON GDP  
(M€) IN 2017 \*\*  
**108.51**

IMPACT ON  
EMPLOYMENT  
(JOB-YEARS) IN 2017 \*\*  
**3,193**

\*\* According to ACCIONA Energy's specific socioeconomic impact measurement methodology  
Job-year: a full-time equivalent job lasting one year.

**MARKET AND GROWTH PROSPECTS**

**2<sup>nd</sup>**  
LARGEST ELECTRICITY  
MARKET IN LATIN  
AMERICA

**~73.5 GW**  
TOTAL INSTALLED  
CAPACITY AT  
PRESENT

**8 %**  
RENEWABLE  
(NOT INCLUDING  
HYDROELECTRIC)

**145 MW**  
PHOTOVOLTAIC  
**3,735 MW**  
WIND

**POSITIVE ENERGY REFORM**

Wind plant capacity factor > 40 %  
Insolation > 2,300 hours/year net

**35 %**  
CLEAN ENERGY  
IN 2024

**46 %**  
CLEAN ENERGY  
IN 2031

**24,000 M\$**  
ESTIMATED  
INVESTMENT IN  
THE NEXT 5 YEARS

**74 %**  
IN GREEN  
INVESTMENT  
ESTIMATED FOR THE  
NEXT 5 YEARS

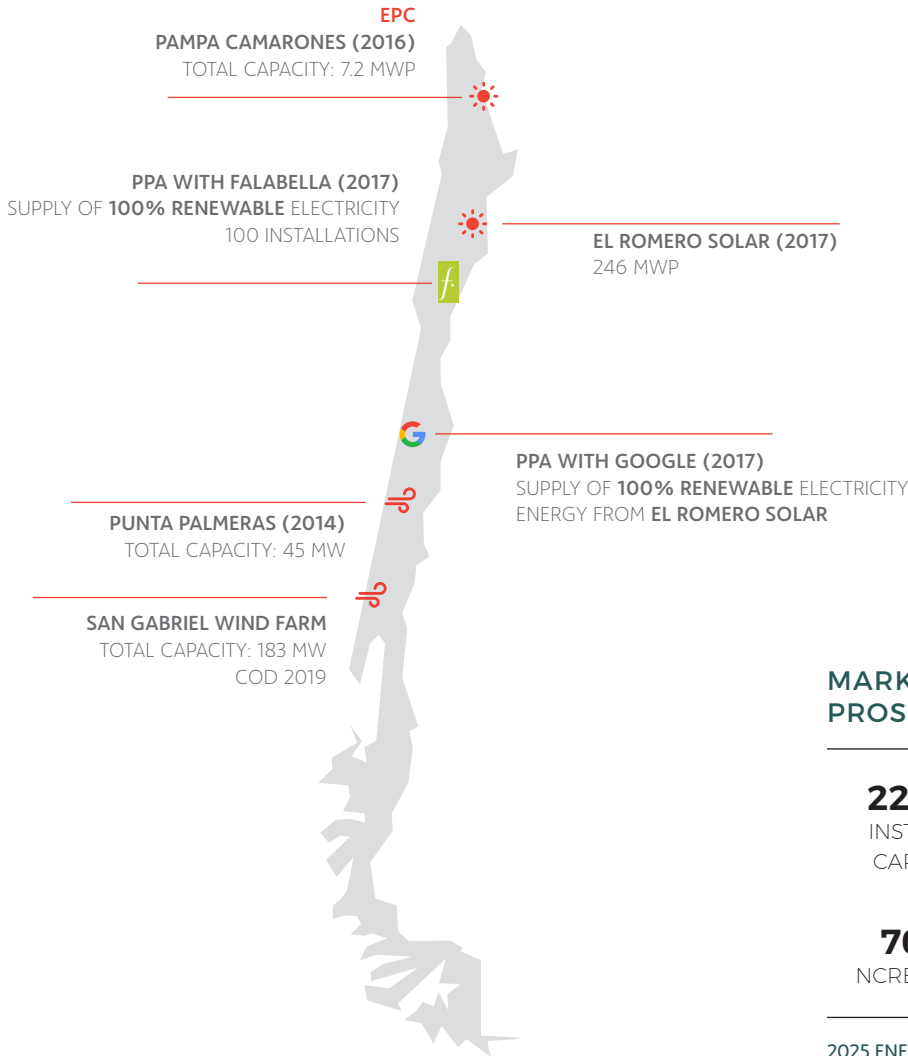
**POSITIVE ENERGY REFORM**

Regulatory framework based on CFE restructuring, introduction of a competitive node-based electricity market, capacity market, adjustment services, financial transmission rights, CELs (clean energy certificates).  
Government relying on long-term contracts to support new investment in power generation.

In 2017, Mexico suffered two major earthquakes that seriously affected the local population, including ACCIONA employees and its supply chain. The company offers its most sincere support to all those affected and to the Mexican people in general.

**ACCIONA ENERGY IS A MARKET LEADER: ONE OF THE MAIN WIND OPERATORS AND WITH ONE OF THE COUNTRY'S LARGEST PHOTOVOLTAIC PLANTS (PUERTO LIBERTAD) UNDER CONSTRUCTION**

CHILE



**MARKET AND GROWTH PROSPECTS**

**22 GW**  
 INSTALLED  
 CAPACITY

**3.1 GW**  
 RENEWABLE  
 (NOT INCLUDING  
 HYDROELECTRIC)

**70 %**  
 NCRE IN 2050

2025 ENERGY AGENDA

**20 %** NCRE OUTPUT

**45 %** NEW NCRE OUTPUT

**20 %** ENERGY SAVING

BY TECHNOLOGY:

**20 %** WIND

**17 %** SOLAR

**291 MW**  
 in operation

**303,083**  
 tCO<sub>2</sub>  
 avoided

IMPACT ON GDP  
 (M€) IN 2017 \*

**33.34**

IMPACT ON  
 EMPLOYMENT  
 (JOB-YEARS) IN 2017 \*

**917**

- A resource-rich region:
  - Highest level of solar insolation on the planet
  - Wind plant capacity factor > 35 %
- Opportunities in corporate PPAs

A STRATEGIC MARKET FOR ACCIONA ENERGY.  
 STRONG DEVELOPMENT VIA AUCTIONS  
 AND CORPORATE PPAS.  
 PPA SIGNED WITH FALABELLA IN 2017

\* According to ACCIONA Energy's specific socioeconomic impact measurement methodology  
 Job-year: a full-time equivalent job lasting one year.

AUSTRALIA



MARKET AND GROWTH PROSPECTS

- \$9 billion investment in renewables in 2017, vs. 3.6 in 2016 (BNEF)

**67 GW**

IN 2015

**11.6 GW**

RENEWABLE (NOT INCLUDING HYDRO)

- 26-28 % reduction in GHG emissions by 2030. (2005 baseline)
- 23.5 % of electricity to be generated from renewable sources by 2020

- Market with growing appetite for renewables
- Opportunity for new technologies due to the geography and the characteristics of the electricity system
- Boost for renewables from national energy plans

ACCIONA ENERGY'S FOURTH-RANKING COUNTRY IN TERMS OF WIND CAPACITY (303 MW)

**303 MW**  
in operation

**777,022**  
tCO<sub>2</sub>  
avoided

IMPACT ON GDP (M€) IN 2017 \*

**95.19**

IMPACT ON EMPLOYMENT (JOB-YEAR) IN 2017 \*

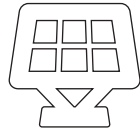
**841**

\* According to ACCIONA Energy's specific socioeconomic impact measurement methodology  
Job-year: a full-time equivalent job lasting one year.



## FLAGSHIP PROJECTS

PROJECTS UNDER CONSTRUCTION OR APPROVED IN 2017 THAT GUARANTEE FUTURE GROWTH

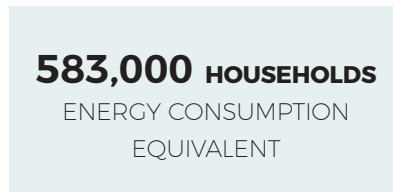


### PUERTO LIBERTAD PHOTOVOLTAIC FARM IN MEXICO

ACCIONA and Tuto Energy have begun the construction of a photovoltaic complex (over 400 MWp) in Sonora (Mexico). It will consist of a total of 1,222,800 photovoltaic panels, with a solar catchment area equivalent to 333 football fields.

- One of the largest facilities in Mexico and Latin America and the largest renewable project ever built by ACCIONA Energy anywhere in the world.
- Output will be split three ways: 229 MW to Mexico's Federal Electricity Commission (CFE), 114 MW to a major Mexican industrial group via a corporate PPA, and the remaining 61 MW to be sold in the wholesale market.

#### Key figures

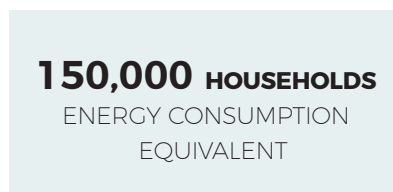
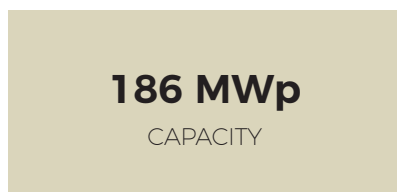


### THREE PHOTOVOLTAIC PLANTS IN EGYPT

ACCIONA Energy and Enara Bahrain Spv WLL (ENARA), the renewable energy platform of Saudi company Swicorp, have started the construction of three photovoltaic plants in Egypt, located in the Benban complex, which was created by the Egyptian government in the Aswan region. This is ACCIONA Energy's first renewable project in Egypt.

- Construction in a 50:50 joint venture with Swicorp
- Investment of 180 million dollars
- The electricity it generates will be supplied to the utility Egyptian Electricity for 25 years.

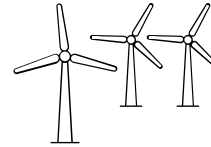
#### Key figures



### REPOWERING THE EL CABRITO WIND FARM

ACCIONA Energy is to repower one of its oldest wind farms: the El Cabrito farm, near Tarifa, in Spain, in operation since 1995.

- **90 wind turbines with a rated capacity of 330 kW will be replaced with 12 more efficient turbines in order to optimise the farm's generation and reduce operating costs.**
- **Consists of eight N100/3000 wind turbines and four AW70/1500 wind turbines.**



#### Key figures

**90**

330 KW WIND TURBINES  
REPLACED

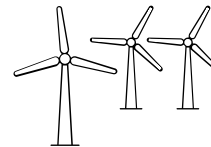
**12 NEW**

WIND TURBINES OF  
**HIGHER PERFORMANCE**

**LOWER**  
LANDSCAPE  
**IMPACT**

### INAUGURATION OF SPAIN'S FIRST BATTERY-BASED WIND ENERGY STORAGE PLANT

ACCIONA Energy inaugurated a battery-based wind energy storage plant in Barásoain (Navarra). This is the first plant of its type to be integrated into a grid-connected wind farm in Spain.



The application of battery-based electricity storage systems linked to wind farms and solar plants is a field with great growth potential due to the strong development worldwide of both renewable energies as battery technology becomes cheaper and more efficient.

- **System comprising two battery types: fast-response and slower-response.**
- **Samsung SDI Li-ion technology in both batteries, connected to an AW116/3000 wind turbine with 3 MW rated capacity.**
- **Technology solutions to be attached to commercial wind farms in order to increase renewable energies' contribution to the electricity grid and manage energy produced optimally.**

#### Key figures

**2 LITHIUM BATTERIES WITH  
DIFFERENT RESPONSES.**  
STORAGE SYSTEM

FAST RESPONSE BATTERY.  
**1 MW** FOR  
**20 min.**

SLOWER RESPONSE BATTERY.  
**0.7 MW** FOR  
**1 hour**