

# ACCIONA Energy

ACCIONA Energy has doubled its renewable electricity production in two years.

In 2010, ACCIONA Energy produced **36.9%** more electricity than in 2009



## A. SYNTHESIS

### ENERGY

ACCIONA Energy's facilities produced a total of 18,574 GWh (millions of kilowatt hours) of electricity in 2010, which represents a 36.9% increase over the year before.

The attributable production, corresponding to the company's interests in the owners of the production facilities, was 16,335 GWh, with growth of 39%.

The growth in electricity production from renewable energy sources, not counting

cogeneration, was even more noteworthy: 39.3% of total production or 18,066 GWh and 41.9% of attributable production or 5,828 GWh.

These figures denote the company's strong growth in this area, with electricity production figures doubling in just two years.

Along with this, 2010 stood out for the start-up of four renewable thermoelectric power plants: two thermosolar (CSP) plants, which positioned ACCIONA as the Company with the most extensive attributable implementation of this

technology in the world at year-end, and two biomass plants which reflect the Company's commitment to this technology in Spain.

ACCIONA increased its installed power of renewables by 173.2 MW in 2010 -100 in thermosolar, 32 in biomass, 39.9 in wind and 1.3 in hydroelectric - and had another 739 MW under construction at year end, 86.5% of which was wind power. Company-owned power plants at end 2010 accounted for 7,587 MW of installed power, 99% of which (7,510 MW) were renewable facilities and 1% (77 MW) cogeneration.

## Other specific milestones reached in 2010 were as follows:

- A sharp increase in hydroelectric power production - a 175% increase to 2,855 GWh - as a result of a full year's generation by the power plants acquired from Endesa in 2009 and heavy rainfall during the year. Hydroelectric production accounted for 15.4% of ACCIONA's total generation.
- The start of construction on three wind farms in Mexico, and the full commissioning of the Eurus wind farm, strengthened ACCIONA's leadership of this country's renewable energy sector.
- Significant growth in thermosolar (+72%) and biomass (+58%) production, to increase in absolute terms in coming years thanks to the commissioning in March 2010 of the facilities mentioned above, complemented - in the case of thermosolar - by power plants currently under construction.
- A 32.3% increase in the emissions avoided in electricity generated by ACCIONA Energy, to a total of 10.6 million metric tons of CO<sub>2</sub>.
- The Company's decision to be present in the deployment of Electric Vehicles (EVs) by contributing recharging infrastructure and electricity certified to be 100% renewable.
- Strengthening in Spain of the business unit in charge of marketing energy to the end user (winning prominent contracts towards the year-end).

The Energy division  
reported turnover  
of **1,497**  
million euros



#### ECONOMIC

From an economic and financial perspective, the Energy division reported turnover of 1,497 million euros in 2010 (a 20% increase), of which 1,307 million (87.3%) were revenues from electricity generation (30.9% increase) and 191 million from industrial activity, development and others (down by 23.7%).

The increased revenues from electricity generation were the result of:

- The contribution of 2,566 MW accounting for a full year's production of new capacity installed and acquired in 2009 and 173 MW installed in 2010.
- Higher production volumes in Spain load factors evolving positively during the year.
- Significant recovery of Spanish pool prices in the second half of 2010.

The Energy division's EBITDA totaled 821 million, 30.5%.up from 2009.

The generation business contributed 913 million euros of income, up 38.8% from the year before, while the industrial and development businesses generated losses of 92 million. EBITDA increased from 50.4% to 54.9%, aided by an improvement to the business margin which rose from 66% to 70% thanks to the increase in wind and hydraulic capacity.

The Energy division contributed 67% to ACCIONA's EBITDA.

As far as other economic-financial parameters are concerned, the division's net investment in 2010 was 641 million euros and net debt at the end of the year totaled 5,616 million.

## B. BUSINESS PERFORMANCE

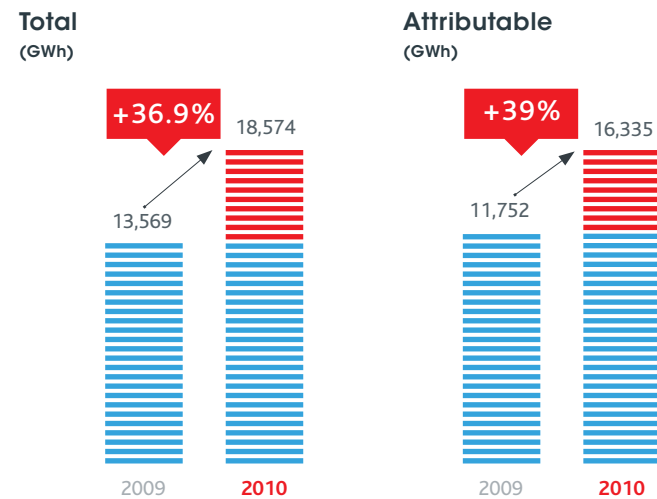
### 5,000 GWh of production added

The 18,574 GWh produced by ACCIONA Energy in 2010 surpassed the company's output in 2009 by more than 5,000 GWh. In absolute figures, there was an increase of 4,583 GWh for a total of 16,335 GWh.

There was an even greater increase in renewable production, with the exception of cogeneration which dipped slightly.

The company's renewable facilities generated 18,066 GWh (5,098 more than in 2009), with attributable production of 15,828 GWh (4,678 more than the year before).

### ACCIONA electricity production



By geographical region, ACCIONA's production increased in Spain to 13,878 GWh - 38.2% more - with notable increases in Mexico (218%), Portugal (44%), Greece (41%), Australia (34%) and Italy (25%).

Spain accounted for 74.7% of the company's total production; the US, 8.8%; Australia,

4.1%; Mexico, 3.9%; Portugal, 2.1%; Canada, 2%; Germany, 1.3% and Korea, 1%.

Italy, Greece, India and Hungary accounted for less than 1%.

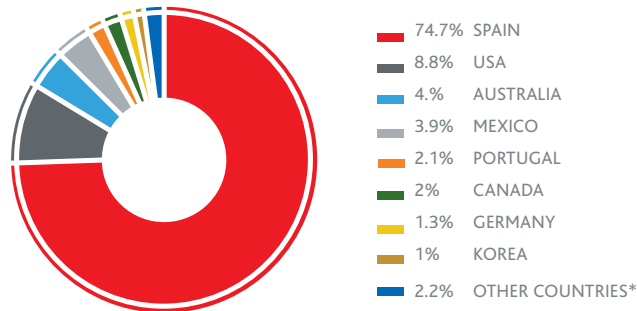
In attributable terms, production in Spain, which was 12,240 GWh, was up by 42.8% and accounted for 74.9% of the total.

/////TOTAL ELECTRICITY PRODUCTION BY COUNTRY (*)			
Country	2009 (GWh)	2010 (GWh)	Difference (%)
Spain	10,039	13,878	+38.2%
· Renewable	9,438	13,370	+41.7%
· Cogeneration	601	508	-15.5%
USA	1,335	1,639	+22.8%
Australia	565	758	+34.2%
Mexico	227	723	+218%
Portugal	268	386	+44%
Canada	384	369	-4.2%
Korea	164	195	+18.9%
Germany	259	241	-6.9%
Italy	103	129	+25.2%
Greece	78	110	+41%
India	101	91	-9.9%
Hungary	46	55	+19.6%
<b>Total Power</b>	<b>13,569</b>	<b>18,574</b>	<b>+36.9%</b>
<b>Total Renewable</b>	<b>12,968</b>	<b>18,066</b>	<b>+39.3%</b>

(\*) All ACCIONA Energy facilities located abroad are renewable facilities.

## Origin of electricity generated by ACCIONA in 2010

Percentage of total



(\*) Includes production in Italy, Greece, India and Hungary.

### 23.7% OF SPAIN'S WIND POWER

The electricity generated by the Company in Spain - 13,878 GWh - accounted for more than 5% of total domestic demand of 275,252 GWh, according to the Preliminary 2010 Report of the Spanish Electric System, REE.

The electricity generated under the special regime - excluding the electricity produced at the Company's hydroelectric plants under the ordinary regime - totaled 11,869 GWh, which

accounts for 13% of Spanish production under the special regime while wind production, which totaled 10,174 GWh, accounted for 23.7% of the country's total wind production.

In attributable terms, the Company's production totaled 12,242 GWh, or 4.4% of Spain's total demand; the special regime production of 10,233 GWh accounted for 11.2% of the total while wind power totaled 8,539 GWh, or 19.9%, of total domestic demand.

The electricity generated by the company in Spain accounted for over five percent of domestic demand



/////TOTAL ELECTRICITY PRODUCTION BY TECHNOLOGY			
Technologies	2009 (GWh)	2010 (GWh)	Difference (%)
Wind	11,550	14,648	+26.8%
Hydro	1,037	2,855	-175.3%
Biomass	162	257	+58%
Thermosolar	125	215	+72%
Photovoltaic	94	91	-3.2%
Cogeneration	601	508	-15.5%
<b>Total</b>	<b>13,569</b>	<b>18,574</b>	<b>+36.9%</b>
<b>Total Renewable</b>	<b>12,968</b>	<b>18,066</b>	<b>+39.3%</b>

## Cumulative power of 7,587 MW

In 2010, ACCIONA added 173.2 MW of renewables and reduced its cogeneration power by 23.5 MW, for a net addition 149.7 MW of power during the year.

The cumulative total is therefore 7,587 MW with 6,704 MW of attributable power.

The new power is broken down as follows:

- Wind: 39.9 MW
- Thermosolar: 100 MW
- Biomass: 32 MW
- Hydroelectric: 1.3 MW.

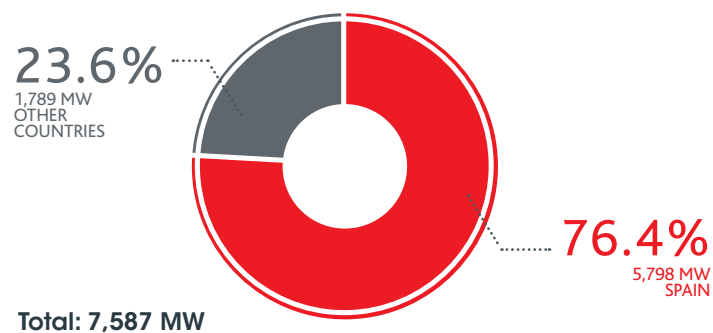
In addition to its own power plants, in recent years ACCIONA has installed plants for clients totaling 1,554 MW, broken down as follows: wind 1,472 MW; photovoltaic 66 MW; thermal solar 15 MW; and thermoelectric 1 MW. The sum of the installed power operated by the company and third parties is therefore 9,141 MW.

//////CUMULATIVE INSTALLED POWER AT END OF 2010		
Technologies	Total power (MW)	Attributable power (MW)
Wind	6,270	5,404
Hydro	912	912
Biomass	65	65
Thermosolar	214	214
Photovoltaic (1)	49	33
Cogeneration	77	76
<b>Total</b>	<b>7,587</b>	<b>6,704</b>
<b>Total Renewable</b>	<b>7,510</b>	<b>6,628</b>

(1) Includes 0.7 MW of low-temperature thermal solar power.

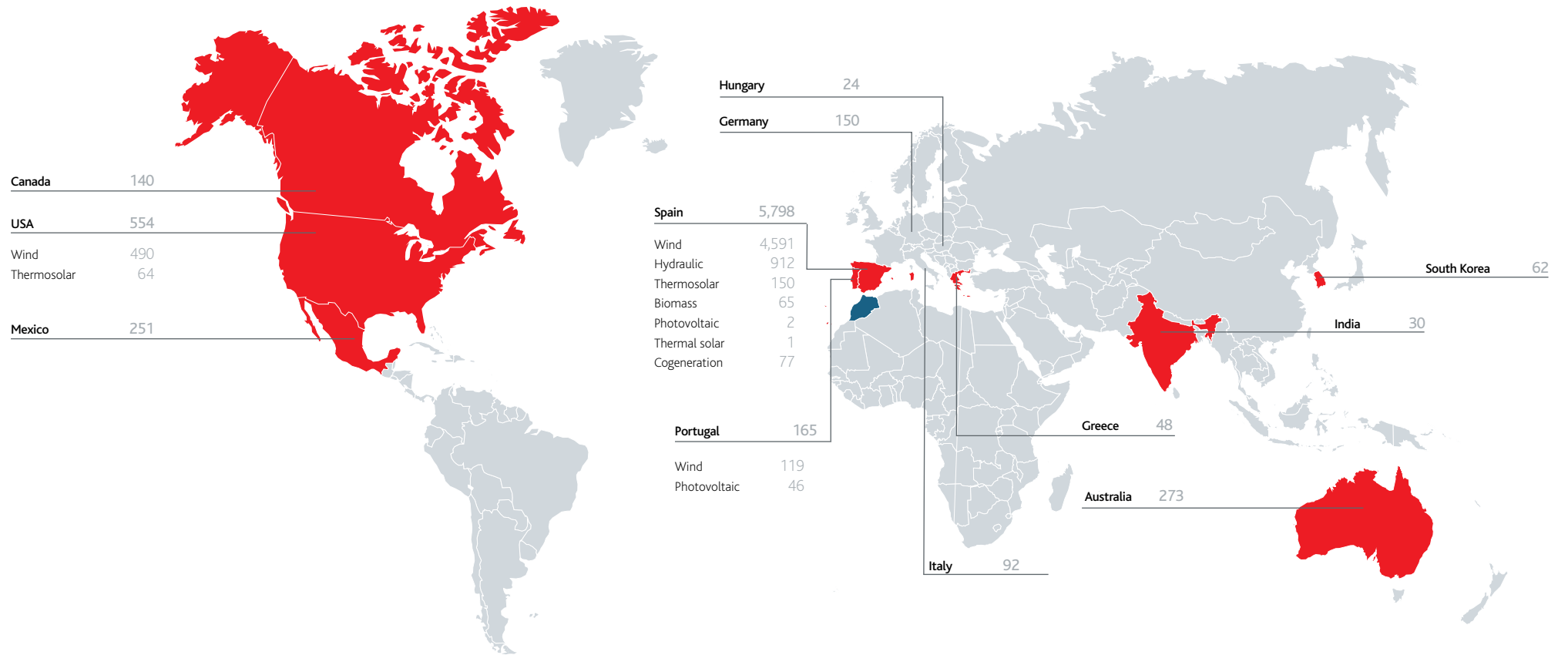
### ↳ Breakdown of cumulative power at end of 2010

Data in MW and as %



Wind accounts for more than **80%** of ACCIONA's renewable power plants

## ACCIONA Energy plants (MW)



■ Plants owned by the company  
 ■ Third party installations

**OWNED MW: 7,587 MW**

Attributable MW: 6,704  
 Total installed MW: 9,141

## More than 10.6 million tonnes of CO<sub>2</sub> avoided

Considering the emission factor in each of the countries where ACCIONA generated renewable electricity in 2010 (depending on the energy mix in each country), a total of 10.62 million metric tons of CO<sub>2</sub> emissions were avoided (10.47 million from renewable power generation and 0.15 million from cogeneration).

Avoided emissions increased by 32.3% in 2010 with respect to the previous year. This is an atmospheric cleaning effort equivalent to 531 million trees in the process of photosynthesis.

If the emissions avoided by biofuel production are counted, the total figure is more than 11 million tonnes of CO<sub>2</sub>.

## 3.4 million consumers served

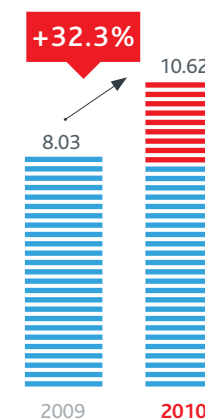
As for equivalent demand met by ACCIONA's electricity production, the 18,574 GWh generated in 12 countries covered the demand of 3.4 million people, a figure arrived at by dividing ACCIONA's output in each country with the per capita electricity demand

in each country (data from the International Energy Agency).

ACCIONA's production in Spain -13,878 GWh - was equivalent to usage by 2.4 million people.

## ➤ CO<sub>2</sub> emissions avoided

### Electricity production



# 1. Wind

## 27% INCREASE IN PRODUCTION

ACCIONA's wind production in 2010 totaled 14,648 GWh, which was 26.8% more than the year before. Wind farms in Spain produced 10,174 GWh - 23.6% more - and those located in other countries accounted for 4,474 GWh, which represents an increase of 34.9%.

Production in Spain accounted for 69.5% of all wind power generated by the company, while the United States accounted for 10.3%; Australia for 5.2%, and; Mexico for 4.9%. Following them at a certain distance, Canada accounted for 2.5%; Portugal for 2%; Germany for 1.6% and Korea for 1.3%. Italy, Greece, India and Hungary accounted for less than 1%. The increased production in Spain accounted for 62.7% of total growth.

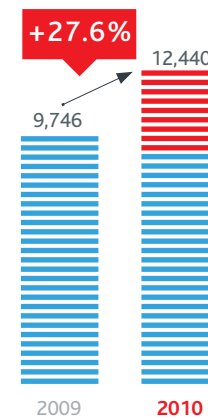
In attributable terms, ACCIONA's wind power generation stood at 12,440 GWh, with an increase of 27.6% over 2009.

## ACCIONA wind power production

**Total production**  
(Annual data in GWh)



**Attributable production**  
(Annual data in GWh)



/////TOTAL WIND PRODUCTION BY COUNTRY (*)			
Country	2009 (GWh)	2010 (GWh)	Difference (%)
Spain	8,233	10,174	+23.6%
USA	1,211	1,505	+24.3%
Australia	565	758	+34.2%
Mexico	227	723	+218%
Canada	385	369	-4.2%
Portugal	178	298	+67.4%
Germany	259	241	-6.9%
Korea	164	195	+18.9%
Italy	103	129	+25.2%
Greece	78	110	+41%
India	101	91	-9.9%
Hungary	46	55	+19.6%
<b>Total Wind</b>	<b>11,550</b>	<b>14,648</b>	<b>+26.8%</b>

(\*) Totals for wind farms in which the company holds an interest.

In attributable terms,  
the company's wind  
power generation  
increased by

**27.6%**

/////ACCIONA ENERGY'S WIND POWER AT 31/12/2010 (MW)			
Country	Cumulative	Under construction (*)	Total
Spain	4,590.9	35.0	4,625.9
USA	489.6	132.0	621.6
Australia	273.0	31.5	304.5
Mexico	250.5	306.3	556.5
Canada	140.5	40.5	181.0
Germany	150.3	-	150.3
Portugal	119.7	-	119.7
Korea	61.5	-	61.5
Italy	91.8	-	91.8
Greece	48.4	-	48.4
India	29.7	56.1	85.8
Hungary	24.0	-	24.0
Poland	-	38.0	38.0
<b>Total Wind</b>	<b>6,269.9</b>	<b>639.1</b>	<b>6,909</b>

(\*) Slated for conclusion in 2011.

### 6,270 MW OF CUMULATIVE WIND POWER

ACCIONA ended 2010 with 6,270 MW of wind power from the wind farms owned by the Company - 5,404 MW attributable - in 12 countries. During the year, 40 MW were added at two wind farms in Italy, Caccamo with 14.45 MW and the enlargement of Isola with 5.95 MW, in addition to two other plants that became partially operational: 15 MW at the Gunning wind farm in Australia and 4.5 MW at the Lamèque wind farm in Canada.

At the end of 2010, Spain accounted for 73.2% of ACCIONA's total installed power using this technology, while the US accounted for 7.8%; Australia for 4.4%; Mexico for 4%; Germany for 2.4%, and; Canada for 2.2%.

They were followed by Portugal with 1.9% and Italy with 1.5%, while Korea, Greece, India and Hungary accounted for less than 1%.

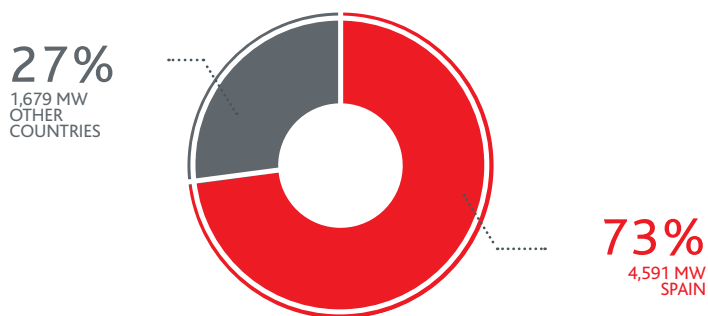
At the end of the year, ACCIONA had 639 MW under construction at 11 wind farms in seven countries:

- In Mexico, Oaxaca II, Oaxaca III and Oaxaca IV, with a total of 306 MW
- In the US, Dempsey Ridge in the state of Oklahoma (132 MW)
- In India, Tuppadahalli in the state of Kanataka (56.1 MW)
- In Australia, Gunning in New South Wales (31.5 MW)
- In Canada, Lamèque in Nova Scotia (40.5 MW)
- In Poland, Golice (38 MW), the country's first wind farm
- In Spain, conclusion of the Benalaz II wind farm (10.5 MW), Peña Nebina (20 MW) and Alaiz Experimental Area (4.5 MW).

The wind farms mentioned above are scheduled to be concluded in 2011.

## ↘ Cumulative wind power at the end of 2010

Data in MW and as percentages



ACCIONA ended 2010 with **639** MW of wind power under construction

## 2. Hydro

### 175% INCREASE IN PRODUCTION

The power generated at the hydroelectric power plants owned by ACCIONA increased by 175% compared to the previous year for a total of 2,855 GWh, which represents 15.4% of ACCIONA's total production and 17.5% of attributable production (all power plants are wholly owned).

The sharp increase in hydroelectric production of 1,818 GWh is due primarily to the fact that the power plants acquired from Endesa in 2009 - with a total of 851.8 MW - only took into account the power generated during the second half of 2009 compared to an entire year's production in 2010. Heavy rainfall during the year

was another factor that contributed to the increase in production.

In 2010, a 1.3 MW plant formerly owned by Endesa was added to the 79 plants owned by ACCIONA as part of the share purchase operation with Endesa.

### 12% OF POWER INSTALLED BY ACCIONA

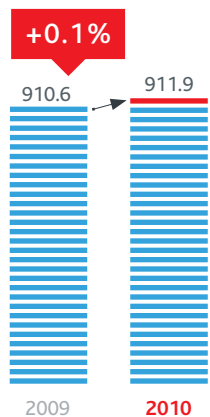
At year end, ACCIONA had 912 MW of hydroelectric power. Of this amount, 680 MW pertain to the ordinary regime (conventional) for electricity generation, which is sold through the electric pool without the renewable energy premium. 232 MW of power was part of the special

regime and that production is sold with the premium.

The power plants working under the ordinary regime generated 2,008.6 GWh of electricity last year, 70% of the total, while the special regime plants generated 846.7 GWh or 30% of the total

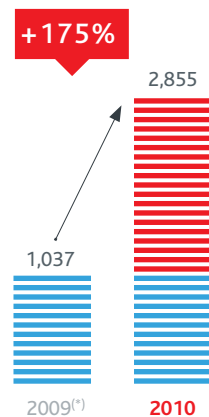
### Hydroelectric power

Data in MW



### Hydroelectric production

Data in GWh



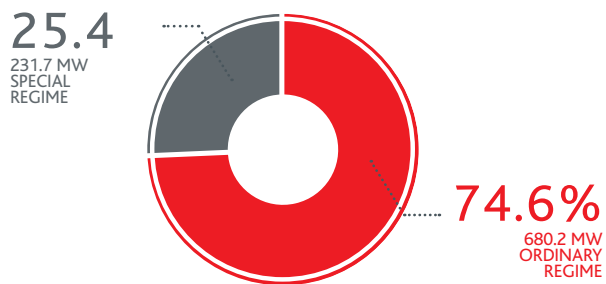
At year end, ACCIONA

had **912**  
MW of installed  
hydroelectric power

(\*) Includes the production of the power plants acquired from Endesa during the second half of the year only.

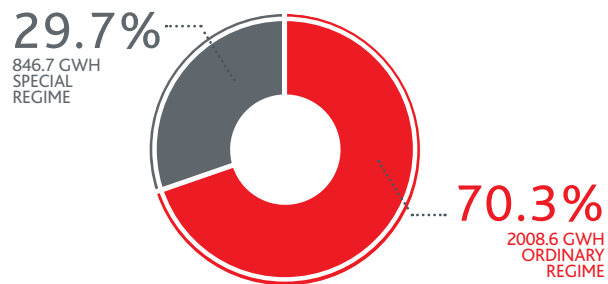
### Breakdown of hydroelectric power

Data in MW and as percentages



### Breakdown of hydroelectric production

Data in GWh and as percentages



### 3. Thermosolar

#### WORLD LEADER

In the fourth quarter of 2010, ACCIONA Energy connected two new concentrating solar power plants to the mains in Spain: Majadas in Caceres (Extremadura) and Palma del Rio II in Cordoba (Andalusia), both with 50 MW of installed power. With these additions, the company's operating MW totaled 214: 150 MW in Spain (the two plants mentioned above plus Alvarado in Extremadura) and 64 MW in the United States (Nevada Solar One in Nevada). At year end, the company was a world leader in the installed power plants using this technology.

In the summer of 2011, ACCIONA will commission a new 50 MW plant in Spain, Palma del Rio I, and another one at the end of 2012 (Orellana, in Extremadura) with the same installed power, bringing the total power generated at the plants owned by the company to 314 MW.

These five thermosolar power plants in Spain - three in operation and two under construction - are registered in the Special Regime Pre-Assignment Register maintained by the Ministry of Industry which means that the electricity produced at these plants is remunerated under the conditions established for these type of facilities in Royal Decree 661/2007.

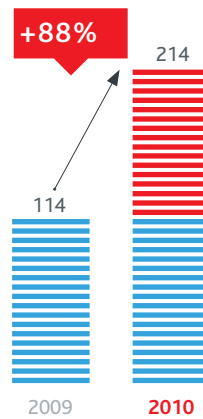
#### /////ACCIONA ENERGY THERMOSOLAR POWER PLANTS AT 31/12/2010

Name	Power (MW)	Status	Location
NEVADA SOLAR ONE	64	Operational	Nevada (USA)
Alvarado	50	Operational	Extremadura (Spain)
Majadas	50	Operational	Extremadura (Spain)
Palma del Rio II	50	Operational	Andalusia (Spain)
Palma del Rio I	50	In advanced stages of construction	Andalusia (Spain)
Orellana	50	Under construction	Extremadura (Spain)

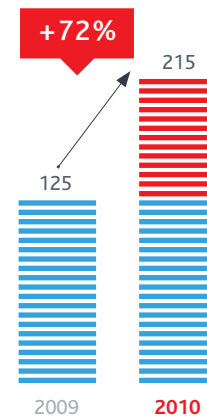
### 72% INCREASE IN PRODUCTION

The Company's solar thermoelectric production in 2010 totaled 215 GWh, which was 72% more than in 2009, due to the increased production at Nevada Solar One (+9%), the inclusion of the Alvarado plant's production and a small part of the electricity produced at Majadas and Palma del Rio II (commissioned at the end of the year). With four fully operational plants and another one, Palma del Rio I, expected to be operational by the middle of year, ACCIONA's thermosolar generation in 2011 will be significantly higher.

**Thermosolar plants**  
(Data in MW)



**Thermosolar production**  
(Data in GWh)



The company's thermoelectric solar production was **72%** higher than in 2009



## 4. Photovoltaic

In 2010, the company's photovoltaic development area focuses on analyzing and preparing new projects for third parties. Italy, France, the US and Spain are the countries where these initiatives are focused.

In terms of production, the company generated a total of 91 GWh, which was 3% less than the year before. The bulk of that electricity, 88 GWh, was generated at the Amareleja (Moura) photovoltaic plant in Portugal, one of the world's largest solar tracking plants at 45.8 MWp of power. The rest came from production plants in Spain.

Attributable photovoltaic production totaled 61 GWh after deducting the interest held by Mitsubishi Corporation in the company that owns the Amareleja solar power plant (34%).

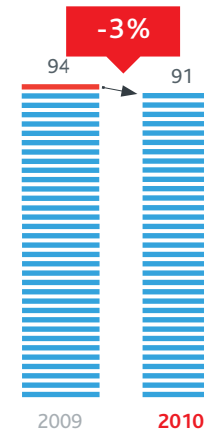
ACCIONA owns a total of 48.3 MWp - 32.5 MWp attributable - and has built an additional 66.8 MWp for third parties, primarily in the

form of *huertas solares*® (literally "solar gardens"). The company has attracted investments from more 3,500 private investors, totaling 456 million euros, for this mode of photovoltaic facility, which it created and registered years ago.

**Photovoltaic facilities**  
(Data in MW)



**Photovoltaic production**  
(Data in GWh)



## 5. Biomass

### DOUBLE THE OUTPUT

In 2010, ACCIONA commissioned two new biomass plants in Briviesca (Castile & Leon) and Miajadas (Extremadura), respectively.

With a combined output of 16 MW they will enable the company to reach a total output of 65 MW in this technology by the end of the year, representing a 97% increase over the year before. The Briviesca biomass plant uses cereal straw as raw material while the Miajadas uses a combination of cereal straw and wood materials.

In addition to these two plants, ACCIONA operates a 25 MW straw combustion plant in Sangüesa (Navarre) and two other plants of 4 MW each in the provinces of Soria and Cuenca, respectively.

The company is currently working on five other projects in Spain located in Valencia de Don Juan (25 MW) and Almazán (16 MW) in Castile & Leon; Alcázar de San Juan and Mohorte (both 16 MW) in Castile-La Mancha; and Utiel (10 MW) in the Valencia Autonomous Region. The plant in Alcázar de San Juan is included in the Spanish Special Regime Pre-Assignment Register.

## ACCIONA commissioned two new biomass plants in 2010 in Briviesca and Miajadas

/////ACCIONA ENERGY BIOMASS PLANTS AT 31/12/2010			
Name	Power (MW)	Status	Location
Sangüesa	25	Operational	Navarre
Talosa	4	Operational	Soria (Castile & Leon)
Pinasa	4	Operational	Cuenca (Castile-La Mancha)
Briviesca	16	Operational	Soria (Castile & Leon)
Miajadas	16	Operational	Caceres (Extremadura)

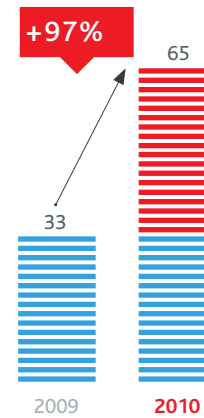
The biomass plants  
generated **58%**  
more electricity in 2010  
than the year before

**58% INCREASE IN PRODUCTION**

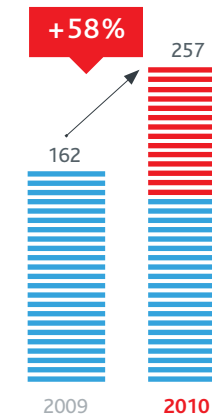
In 2010, ACCIONA's biomass plants generated 257 GWh of electricity, which was 58% more than in 2009 due to higher production levels at the Sangüesa plant and the inclusion of Briviesca's production for the last four months of the year.

Like the thermosolar plants, the output at the biomass plants in 2011 will be considerably higher than the year before due to the fact that they will reflect a full year of production for the plants commissioned in 2010.

**Biomass plants**  
(Data in MW)



**Biomass production**  
(Data in GWh)



## 6. Other business

### **WIND TURBINES: 348 MW PRODUCED, 89% MORE THAN IN 2009**

In 2010, ACCIONA Windpower produced a total of 231 new wind turbines, representing 348 MW and an 89% increase over 2009, a year in which this business experienced a drastic decline due to reduced investment in new wind facilities by ACCIONA Energy and third-party clients.

The wind turbines produced in 2010 were earmarked for projects in Mexico, Australia, Poland, Canada, the US, France, the UK and Spain. 62% of the production - 216 MW - was allocated to ACCIONA Energy projects while the remaining 38% - 132 MW - went to third party clients.

ACCIONA Windpower has three wind turbine manufacturing plants: two in Spain (Navarre and Castellon) and one in the

United States (Iowa). The company also has a plant in Spain which manufactures wind turbine blades and another assembling wind turbine components.

### **BIOFUEL: OPERATING IN A DIFFICULT CONTEXT**

ACCIONA's business in the biofuel sector - specifically biodiesel - was affected by the difficult situation of the sector in Spain due, to a large extent, to the absence of a law that prevents biodiesel from being imported from other countries. These countries benefit from tax advantages at both the origin and destination, and therefore compete unfairly with the biodiesel produced in Spain.

This situation had some effect on the company's business at the biodiesel plant at the Port of Bilbao (Basque Country), which supplies Petronor under a two-year

agreement signed by the parties, and a much greater effect on the plant operated by the company at Caparroso (Navarre).

The bioethanol plant in Alcázar de San Juan, in which the company has a 50% stake, was similarly affected by the difficult situation in the sector, although to a lesser extent thanks to the supply agreements signed with BP and Repsol.

### **ELECTRICITY SALES TO END USER**

In 2010, ACCIONA promoted the sale of energy to end users in Spain. At year end, the subsidiary ACCIONA Green Energy Developments was awarded a contract to supply electricity to *Administrador de Infraestructuras Ferroviarias* (ADIF) for the year 2012, which accounts for 70% of ADIF's usage for the year and will contribute 162 million euros of revenue. This contract award was yet the latest in a

## ACCIONA has carved out a position for itself as a supplier of recharging infrastructure for electric vehicles

series of previous awards that demonstrates ACCIONA's interest in participating in the energy sector's value chain.

Additional objectives in this regard include highlighting brand visibility; hedging much of the price risk associated with the company's generation portfolio by stabilizing revenues; diverting some of the electricity pool fluctuations, and; generating synergies with other Group business.

This business, with which ACCIONA Green expects to control 3% of electricity sales in Spain in 2012, supplements the company's role as a sales agent in the country's electricity market. At the end of 2010, the company manages more than 6,000 MW of electricity at 277 production facilities in Spain.

### ENERGY EFFICIENCY

Energy efficiency is key to meeting challenges associated with climate change and security of supply without limiting economic growth.

Because of its importance, ACCIONA decided to create a new company within the Energy Division called ACCIONA Energy Efficiency, which is responsible for the following activities:

- Energy services for construction and industry;
- Consulting, auditing and engineering services in the areas of energy savings, energy efficiency and emission reduction;
- Studying and developing sustainable action plans in the energy, environmental and urban mobility fields;
- Designing, building and operating energy-efficient and/or renewable power generation systems.

### Energy services

The company participated in the 2000ESE Plan approved by the Government of Spain to promote energy efficiency in 2,000 public buildings.

It was chosen as a finalist in the Competitive Dialogue for energy management of the Cuzco Complex (seat of the Ministry of Industry, Tourism and Trade, and part of the Ministry of Economic Affairs and Treasury) in Madrid.

### Electric mobility

ACCIONA Energy Efficiency is positioning itself as a key player in this sector in Spain through three main lines of action:

- Collaboration agreements with electric vehicle manufacturers for development of intelligent charging networks. Examples are those with Renault and Nissan;

- Agreements with parking area operators to install intelligent charging systems on their premises. Notable among these are the agreements signed with COMFERSA (operators of ADIF and RENFE car parks) and retail shopping centers (such as Unibail-Rodamco and Carrefour);
- Agreements with local governments to promote pilot projects designed to identify social and technical problems with charging systems and to take measures to facilitate the development of the sector.

In this regard, it has signed agreements with Pamplona city and the Navarre Government.

### **Sustainable construction**

The Company is making various efforts in this area:

- Reducing energy demands of buildings through use of passive architectural elements

(insulation, shadowing, natural lighting, cross-ventilation);

- Energy efficiency of air conditioning and lighting systems;
- Use of renewable energies;
- Studies of low-maintenance, longer lasting materials;
- Better water consumption and recycling systems;
- Improved energy ratings.

In 2010, the company conducted the following energy efficiency and sustainability studies for ACCIONA Infrastructure:

- Parkville Comprehensive Cancer Center, Melbourne;
- New Oakville Hospital, Toronto;
- Madrid International Conference and Convention Centre;
- Conference and Exhibit Hall, Leon;
- National Paraplegic Hospital, Toledo.

## C. INNOVATION

ACCIONA Energy invested 36 million euros in R&D and Innovation in 2010. Some of the most notable research projects carried out during the year included the following:

### OFFSHORE WIND FARMS

- Conclusion of the Cenit Eolia project, a four-year project in which the participants designed, simulated and tested floating foundations for offshore wind turbines.
- Launch of Cenit Azimut, a project to develop a high power (15 MW) offshore wind turbine and overcome the challenges keeping this technology from taking off, some of which include efficiency and availability issues, energy costs and investment costs.

- Commencement of the Marina wind project which seeks to evaluate the economic viability of new offshore platform concepts that incorporate converters capable of harnessing the power of wind, waves and ocean currents.

- Launch of the European HiPRWind project to highlight the best designs, materials and technologies for the development of large floating offshore turbines (up to 10 MW) on an industrial scale.

### BIOMASS

- Participation in the Triti-Mass Project which investigates and enhances herbaceous crops for the production of biomass to be used

in electricity production plants. The aim is to obtain varieties of oat and triticale for the production of biomass adapted to the different agricultural and climate conditions in Spain.

- Participation in the European Enercorn project which focuses on developing and optimizing corn straw logistics and analyzing the combustion of these raw materials in biomass boilers, including corrosion studies.

### HYDROGEN

- Conclusion of the Cenit Sphera project after four years of research.
- The results of this project included, among other things, the development of electrolyzer

technology and the operation of a hydrogen laboratory.

- Launch of the Desphega project for the design of high power alkaline electrolyzers.

#### BIOFUEL

- Development of new photobioreactor prototypes as part of the Microalgae project; preliminary tests and operating trials to identify, separate and select a local strain of microalgae adapted to low irradiance and more resistant to local contamination.
- Conclusion of a study of second generation biofuels from farm, forest and urban waste. A technological route was selected as the best

technical and economic option, with lower risks and higher performance levels.

#### PHOTOVOLTAIC

- Launch of the ILIS project for the development at the photovoltaic plant in Tudela of a battery-supported integral control system for photovoltaic plants.

#### THERMOSOLAR

- As part of the STORE project, the company analyzed the technical viability of a system of thermal storage tanks in a ceramic medium, manufactured *in situ*, with diameters greater than 3.6m and lengths greater than 50m, with positive results.

#### WIND FARM OPERATION

- Participation in the 3D Navigation project to develop electromagnetic simulation software designed to quantify the interference of wind farms with telecommunication systems. A scientific paper was presented at the European EUCAP 2010 Conference on Antennas and Propagation. Ultrasound detection systems were installed at two wind farms as part of the Avifauna project to investigate new technologies for establishing preventive and corrective measures that limit the interference of wind farms with the habitats of birds and bats.

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