





Abengoa has evolved enormously since its inception in Seville back in 1941. Following its very first project to manufacture a five-amp single-phase meter, Abengoa branched out into technical projects and studies, electrical and mechanical assembly work, and control systems, among other lines. It essentially emerged as a leading engineering firm, a line of business that embodied the hallmarks of Abengoa up to the mid-1990s. Thanks to the many challenges and opportunities that have arisen since then, the company has successfully emerged as a leading company, combining its proven ability to perform projects with the capacity to operate a whole host of different assets, including concentrating solar power plants, power transmission lines, desalination plants, industrial waste recycling facilities and biofuel production plants.

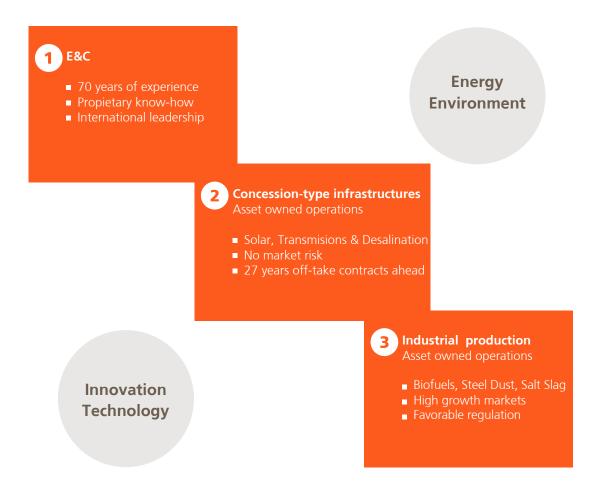
In terms of international presence, Abengoa took its first steps outside Spain back in 1963 when it set up its first subsidiary in Latin America, Argentina to be precise. It has since extended its reach further through its concerns in Brazil, Uruguay, Mexico, Peru and Chile. To cite some further examples of this rapid expansion, the company penetrated Morocco and Algeria in the mid-1970s, China in the 1980s and the United States at the start of this century. All major milestones in their day, which have helped Abengoa to become a multinational company with well-entrenched operations on the five continents. Spain currently accounts for 26 % of our revenues. Brazil, with 19 %, and the United States, with 16 %, represent, respectively, Abengoa's second and third most important markets. Latin America continues as the region encompassing the highest percentage of our international business, totaling 31 %, followed by North America and Europe, excluding Spain, both with 16 %.

With a view to tailoring reporting to the current reality, the company has been using new segment reporting since the third quarter of 2010. As the company is fully aware of the work involved in adapting to this new reporting approach for all stakeholders, the financial results for 2010 also featured traditional segmenting. This Annual Report is, for the last time, structured around the traditional business units, and only this summarized report analyzes the company under the new approach.

# **New Segmentation**

Abengoa, an international technology company, is involved in two sectors - Energy and Environmental Services, which account for 95 % of its revenues - and three lines of business – Engineering and Construction, Concession-type infrastructure and Industrial production.





#### **Engineering and Construction**

This area encompasses core engineering activity in energy, water, and information technologies, a field in which the company boasts over seventy years of experience. Abengoa specializes in complex turnkey projects to construct concentrating solar power (CSP) plants; hybrid solar-gas facilities; conventional power plants; power transmission lines; hydraulic infrastructures, including large-scale desalination plants; and biofuel plants, among others. The company is also recognized worldwide as the leading international contractor in the field of transmission and distribution and the third largest player in power (source: ENR Magazine). It is also a market leader in Information Technologies and Services for critical sectors.

In this particular segment, revenues for 2010 climbed to  $\$ 3,121 M, up 26 % on figures for 2009, while EBITDA rose to  $\$ 415 M, marking a 7 % year-on-year increase. Margins moved from 15.7 % to 13.3 % for the same period. Over the last twelve months, Abengoa has generated  $\$ 4,200 M in order intake, closing the year with a portfolio of  $\$ 9,274 M (5.2 % up on 2009), meaning that the company can be confident of sizeable revenues in the mid-term.



Major milestones for the year included the following:

- Contract secured to construct the 500 kV Chilca-Marcona-Ocoña-Montalvo power transmission line in Peru, as well as three new substations and extension work on a further three.
- Completion of the Solnova 1, Solnova 3 and Solnova 4 CSP plants, each with an installed capacity of 50 MW and all now operating successfully at full output.
- EPC (engineering, procurement and construction) contract awarded and started construction on what will be the largest CSP plant in the Arab Emirates, namely the 100 MW Shams-1 plant. The contract was secured through an international tender held by Masdar.
- Start of EPC on the Solana CSP plant in Arizona, with 280 MW of gross power and six hours
  of molten salt storage. The facility utilizes parabolic trough technology with thermal storage
  achieved through molten salts to extend the hours over which the plant can operate during the
  day.
- Work continued on three solar thermal power plants, while construction got underway on a further five facilities in Spain, specifically in the municipalities of Écija and El Carpio in Andalucía, Logrosán in Extremadura and Ciudad Real, all with an installed capacity of 50 MW and featuring parabolic trough technology.
- Completion and delivery to the client of the Integrated Solar Combined Cycle (ISCC) solar thermal power plant in Ain Beni Mathar (Morocco), the world's largest ISCC plant. The facility will produce 482 MW of total power, with the solar field contributing 24 MWe, as well as specific consumption associated with the generation of thermal power by the solar field.
- Completion and delivery of three bioethanol plants, two in North America and the other in the Netherlands, with a combined capacity approaching 300 Mgal -1,160ML/year.
- Start of construction on the 300 MW cogeneration plant in Tabasco (Mexico) for the stateowned company Petróleos Mexicanos (Pemex).
- Completion of construction work on the 200 kV high-voltage Carhuamayo-Carhuaquero power line and associated substations in Peru. The project includes 670 km of line, two new substations and five upgrades to existing substations.
- Start of construction on the 600 kV direct current Porto Velho-Araraquara power line in Brazil, accounting with 2,350 km.
- In India, construction work continued on two 400 km sections of the 765 kV Biswanath Chariyali-Agra direct current power line, and work was completed on the awarded section of the 400 kV Bariapada-Bhaddrak line.
- In Saudi Arabia, construction got underway on the 132 kV high-voltage power line in Qurayyat for the SEC (Saudi Electricity Company). The company is also constructing the Jeddah and Riyadh GIS (Gas Insulated Substations), both 380 MW and 132/13.8 kV, again for the SEC.
- Contract awarded for the hydro power plant at the start of the Navarra Channel ("Canal de Navarra") in Spain. Total installed power will stand at 20 MW, with annual production amounting to 30 GWh.
- Contract secured for the Donna desalination plant in Texas.
- Construction of the Qingdao desalination plant in China, which will employ reverse osmosis technology. The facility will be able to desalinate 100,000 m³ of water per day, enough to supply a population of 500,000 people with clean drinking water. This particular project was awarded the "Best Project of 2009" accolade by the prestigious Global Water Intelligence (GWI) publication.
- Unveiling and start-up of the Chennai desalination plant in India, which is capable of desalinating 100,000 m³ per day of water, making it India's largest reverse osmosis desalination facility.
- Desalination plant awarded in Djerba (Tunisia). The plant, which will run on reverse osmosis technology, will be able to produce 50,000 m³/day of desalinated water, enough to supply a population of over 250,000 people.
- Start-up of operations at the Skikda desalination plant in Algeria, with a capacity of 100,000 m<sup>3</sup> of drinking water a day through reverse osmosis technologies.



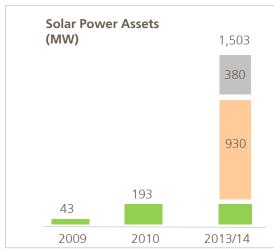
- Completion of work on the Honaine seawater desalination plant (Algeria). Start of the commissioning stage for the same desalination plant, which boasts a daily water generation capacity of 200,000 m<sup>3</sup>.
- In the industrial sector, electrical upgrade work was carried out on the Ford factory in Almusafes (Spain) for the Fiesta and C-Max models.
- Extension of the operational agreement with the Swedish electric utility Vattenfall until 2014, with various options to increase the value of the information services on offer. Following successful completion of the initial project, 2011 will witness the implementation of this new measurement and infrastructure management services agreement.
- Alliance signed with IBM in North America to create ITS (Intelligent Transport Solutions) mobility management solutions for small-scale transport networks, such as small and medium-sized cities.
- Contract signed with United Airlines whereby the company will provide meteorological services to 122 airports around the world.
- Agreement reached with John Deere Agri Services to link up its platforms by integrating Telvent information into John Deere's AGRIS™ Commodity Management system.
- Contract secured with the EFE news agency to implement a multimedia publishing system (known by its Spanish acronym of SIEM), which will allow it to integrate all content generated by the agency into one sole management system.

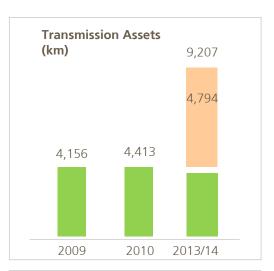
#### **Concession-Type Infrastructures**

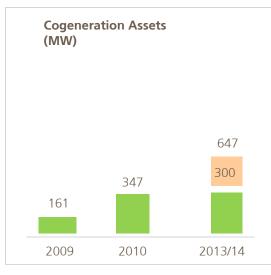
This segment groups together any asset operations for which we have long-term contracts in effect, including take-or-pay contracts, power or water purchase agreements and tariff-type sales contracts. This segment therefore includes solar power plants, power transmission lines, cogeneration plants and desalination facilities. There is no demand risk for these particular assets, and company efforts focus on streamlining operational aspects. Abengoa has a young asset portfolio, with an average of 27 years of envisaged operation still remaining. Furthermore, the company's investment volume in assets currently under construction will more than double our current capacity once they begin operating.

In this particular segment, revenues for 2010 climbed to €309 M, up 41 % on figures for 2009, while EBITDA rose to €208 M, marking a 46 % year-on-year increase.

#### **Concesion-type infrastructures**









**Under Development** 

#### Highlights:

• Operation of solar power plants:

In Operation

Three new 50 MW solar power plants, each utilizing parabolic trough technology, were commissioned in Spain, thus bringing the company's operating capacity from 43 MW to 193 MW in 2010. A further milestone for 2010 was confirmation of solar thermal power regulation in Spain by Royal Decree enacted in December.

**Under Construction** 

Abengoa possesses 930 MW currently under construction in Spain, North America and the Middle East, all of which will be commissioned over the coming three years. These projects include the Solana plant mentioned above, for which Abengoa secured the necessary funding thanks to a \$1,450 M federal loan guarantee from the US government.



- Operation of power transmission lines:
  - Abengoa closed the year with over 4,400 km of power lines in operation, primarily in Brazil, where the company is the country's leading private power line concessions firm, and also Peru, where a 670 km line crossing the Andes at an average height of 3,000 m above sea level has been brought partially online. Over the coming years, the number of lines in operation will be effectively doubled, thanks to the Norte Brasil (Latin America's longest direct current line), Linha Verde and Manaos projects in Brazil, and the Chilca project in Peru. Revenues are strictly regulated and based solely on power line availability.
- Operation of desalination plants: 2010 witnessed the start-up of the Chennai plant in India, which is capable of generating 100,000 m³ of desalinated water per day, bringing the company's daily operating capacity to 375,000 m³. When the plants currently under construction in China and North Africa are commissioned, this capacity will leap to over 900,000 m³ per day.

#### **Industrial Production**

This last segment embraces Abengoa activities in biofuels and industrial waste recycling. These activities, which are also performed with proprietary assets, focus on high-growth markets in which the company enjoys a position of leadership. Abengoa is the European market leader in ethanol production, and also ranks sixth in North America. In recycling, the company is the market leader in the niche markets where it operates.

In this segment, revenues for 2010 climbed to €2,137 M, up 48 % on figures for 2009, while EBITDA rose to €320 M, marking a 46 % year-on-year increase. The drivers of this growth are increased ethanol production stemming from three new plants currently in operation, two in the United States and one in Europe, which have pushed up the company's capacity to over 830 Mgal -3,140 ML- per year as well as the recovery of recycled material volumes in Europe in the wake of a crisis-stricken 2009. Abengoa's annual recycling capacity currently stands at 2.5 Mt.

Highlights in the biofuels sector for 2010 include:

- Start of production at the Mount Vernon plant in Indiana and at the Madison plant in Illinois, boasting an annual capacity of 90 Mgal -340 ML- of bioethanol and 230,000 t of DGS.
- Start-up of the Europoort plant in Rotterdam, the Netherlans, capable of producing 126 Mgal
   -480 ML- of bioethanol and 360,000 t of DGS per year.
- Start of maritime bioethanol exports from the United States.
- Lease of a new storage terminal in Houston, Texas, with a storage capacity of 2.6 Mgal 10 ML.
- Promotion and expansion of a network of e85 biofuel service stations in Spain, which already includes 21 distribution points.

#### Industrial waste over 2010:

- The company's steel dust recycling units treated a combined total of 562,308 t (dry) of zinc-containing steel and iron dusts, marking a year-on-year increase of 11.9 %.
- The company also treated 375,000 t of salt slag over 2010, marking a year-on-year leap of 57 %.
- Successful integration of the three German salt slag recycling plants acquired in 2010.

# **Technological Development**

Abengoa is a technology company that drives its business via innovation, defined as any knowledge-based change that creates value. Thanks to technological development, Abengoa is able to maintain a competitive edge that creates value throughout its three lines of business, ranging from initial construction to full operation of the asset in question.



In 2010, Abengoa's investment in R&D amounted to €92.6 M, 3.2 % up on the previous year and equivalent to about 1.7 % of its total sales, meaning a 8 % compound annual growth rate in R&D investment during the last five years. Staff engaged in R&D activity already amount to nearly one thousand people, including scientists, engineers and support personnel. The company also collaborates with prestigious international research centers, such as NREL (National Renewable Energy Laboratory) in the United States, and DLR (Deutsches Zentrum für Luft- und Raumfahrt) in Germany.

In 2010 Abengoa Research has been created to bring together all of the highly innovative R&D&i activities and to act as an incubator for ideas at Abengoa, generating new prospects for the future.

As a product of its continuous work in R&D, Abengoa has cemented its position as a global leader in concentrating solar power (CSP) technologies, and similarly in enzymatic hydrolysis technology for producing second-generation ethanol, as illustrated by the 99-plus patents awarded or awaiting approval

### Concentrating Solar Power Technology (CSP)

The solar energy sector is still in its infancy and relies heavily on technology, meaning that innovation is a key aspect that will enable us to develop better technologies at costs that prove competitive with fossil fuels, including the cost associated with CO<sub>2</sub> emissions. Two main drivers will combine to lower costs: Improvements to the supply chain and the introduction of more efficient new technologies. This is precisely where innovation has a vital role to play.



Abengoa has an ambitious CSP R&D plan in place, in which many programs have already reached the pilot plant stage. Milestones for 2010 included:

- During 2010, the operation of the superheated steam tower, the Eureka project, has continued, reaching temperatures over 500 °C. The plant was commissioned by the start of 2009.
- The engineering of a new superheated utility scale tower has been concluded.
- A new and technically improved heat exchanger has been installed in the molten salt storage demonstration plant.
- Performance tests of a new parabolic collector trough have been conducted, as well as a new heliostat, which lower current costs by 15 and 25 % respectively.
- An agreement has been reached with the US Department of Energy for the joint development of new advanced towers.
- During 2010, 25 new patents have been applied, reaching a total of 80 patents awarded or pending of approval.

#### **Enzymatic Hydrolysis Technology for Producing Second-Generation Ethanol**

It is possible to convert agricultural waste from wood and other potential energy crops into ethanol using enzymatic hydrolysis, without affecting the ecological balance or the food chain. Second generation biofuels also have strong potential for reducing emissions compared to the fossil fuels.

Abengoa has two production facilities at R&D scale that are world leaders in enzymatic hydrolysis technology. One pilot plant is in York (United States) and has been operational since 2007, while the other 1.3 Mgal -5 ML- pilot plant is in Salamanca (Spain) and has been operational since 2009.

#### Milestones for 2010 included:

- The basic process engineering package for the first commercial cellulosic ethanol facility in Kansas has been completed.
- The proprietary enzyme technology at commercial scale for lignocellulosic ethanol production has been demonstrated.
- More than 2,500 h of continuous operations have been accumulated at the cellulosic ethanol demonstration plant in Salamanca, Spain.
- During 2010, three new comprehensive patents have been added, totaling seven.