

economic dimension

- a. transparent businesses
- b. sustainability in the supply chain
- c. innovation at the service of people and the environment

innovation at the service of people and the environment

2009 milestones

- Total direct investment in R&D and innovation projects increased by 30% with respect to 2008, to 92.2 million euros.
- The Revised Innovation Strategic Plan was ratified with major financial support from the European Investment Bank.
- Four new CENIT research projects awarded by CDTI, an agency of Spain's Ministry of Science and Innovation.
- ACCIONA was leader in the electricity and construction industries in terms of innovation intensity: 6.7% of EBITDA dedicated to R&D&I (data from the 2009 EU R&D Industrial Investment Scoreboard, published by the European Commission).
- ACCIONA Windpower successfully commissioned its first 3 MW prototype, which will be produced with three different diameter rotors. The machine, built in late 2008, began producing electricity in 2009.
- ACCIONA Agua created the SEPAFLOC® and NITROREMOVAL® brands in 2009 as a result of its research into desalination and sewage treatment.
- ACCIONA Installation Services obtained UNE 166002:2006 certification for its R&D and Innovation Management System.
- ACCIONA was appointed as a member of the CEN/TC389 Innovation Management Committee (European Committee for Standardization), which is working to internationalize the UNE 166002:2006 standard.

2010 goals

- Double the patent portfolio between 2010 and 2013 in all business units. Projected investment in R&D in the period is 400 million euros.
- Develop a research project into the elimination of emerging micro-pollutants in water.
- Research the development of deep water structures for harnessing energy from wind, waves and sea currents by participating in the "Marina" (Marine Renewable Integrated Application Platform) project, which is part of the EU's 7th Framework Programme.
- Expand the Caparroso microalgae plant, which started up in 2009, to one hectare by installing new photo-bioreactors to improve performance.
- Develop a new plant to use corn stalks for energy production. The plant must overcome the problems associated with the chlorine content and alkalinity of corn waste.
- Develop and implement technologies for the design and construction of new types of pedestrian overpasses using leading-edge materials.

Innovation, competitiveness and success

As a pioneering force in innovation, ACCIONA has a responsibility to place innovation at the heart of all of the Company's activities. We view it as a factor for competitive differentiation and we orient it towards sustainability.

ACCIONA's concept of innovation is not confined strictly to technology but also extends to operations and the development of new business models. One of ACCIONA's objectives for the coming years is to step up its efforts to incorporate innovative solutions into its business processes so as to enhance sustainability and maximize cost and resource efficiency.

**Innovation is a
differentiating factor
for ACCIONA and
is oriented towards
sustainability**



ACCIONA
set a new record
in R&D&I investment
in 2009:
92.2
million euros

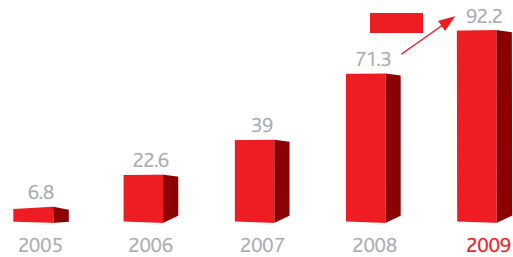


Investing in R&D to drive forward our growth model

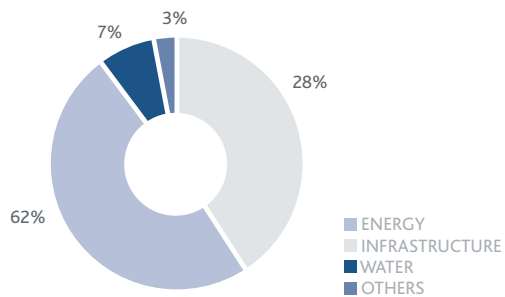
ACCIONA set a record in R&D investment in 2009. This included the review of the R&D Strategic Plan and the closure of a financing deal with the European Investment Bank. The main events were as follows:

- Investment of 92.2 million euros in direct R&D and innovation projects, i.e. 30% more than in 2008; the energy and infrastructure divisions accounted for 90% of total innovation work.
- Implementation of 114 research projects grouped into 15 lines of research connected to ACCIONA's business areas.
- A total of 377 professionals involved in R&D, 2.7% more than in 2008.
- The industrial property management model was enhanced and continues to produce results. ACCIONA now holds 52 patents.

Investment in R&D (Million euros)



Breakdown of R&D investment by area



Leader in R&D

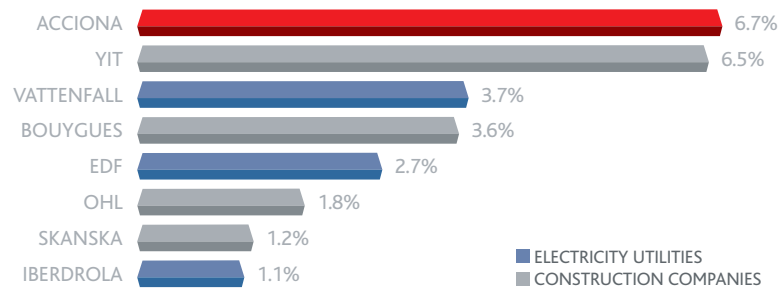
ACCIONA's efforts to innovate, strengthened by the projects that got under way in 2009, are illustrated by following:

- ACCIONA is the leader in the European electricity and construction industries in terms of innovation intensity, according to a survey by KPMG based on data from the EU R&D Industrial Investment Scoreboard 2009.
- ACCIONA ranked third among Spanish companies in terms of participation in the EU's 7th Framework Programme, with 48 projects, and it ranked first in the NMP programme.
- ACCIONA was the Spanish company with the most CENIT projects (13), having obtained four new projects in 2009.

- ACCIONA continued to focus on cutting-edge cleantech by investing in Nth Power Fund IV, managed by Nth Power. The fund invests only in clean energy projects.
- ACCIONA is a member, collaborator or leader of the following initiatives:
 - Chair of the E2B Energy Efficient Buildings Public Private Partnership - E2B PPP.
 - Member of the High Level Group of the European Construction Technology Platform.
 - Collaborator of the European Hydrogen and Fuel Cell Technology Platform.
 - Participant in the European Solar Thermal Technology Platform.
 - Member of the International Desalination Association.

Leader in innovation intensity

R&D and Innovation investment/EBITDA 2008



Source: KPMG, 2010, based on data from the EU R&D Industrial Investment Scoreboard 2009. Construction companies and electric utilities (revenues > €1bn).

ACCIONA'S Cenit R&D Programmes

- **BIOSOS:** sustainable technology for producing biopolymers.
- **ATON:** architectural integration of thin-film photovoltaic solutions.
- **CETICA:** integration and management of renewable energy in buildings.
- **EOLIA:** foundations, environmental impact, evaluation of wind resources, planning and synergy with seawater desalination and aquaculture, for offshore wind farms.
- **MEDIODIA:** renewable energy systems to cover energy needs for climate control, process electricity and control of agricultural applications, on a centralised and distributed basis.
- **SPHERA:** production of hydrogen for energy, and the associated reconversion.
- **CLEAM:** new models of linear transport infrastructure based on techniques for managing waste, atmospheric pollution, high-performance green construction materials, and reduction of the environmental impact.
- **DOMINO:** development of construction materials with enhanced properties due to the addition of nanocharges, for use as multifunctional materials.
- **TECNOCAI:** providing a healthy indoor atmosphere in buildings, ensuring occupants' comfort.
- **TIMI:** intermodal transport that is sustainable from the economic, social and environmental standpoints.
- **PIIBE:** seeking new raw materials to reduce the cost of producing biodiesel.
- **OCEANLIDER:** to develop floating windpower meters for offshore use with a view to developing a methodology for operating offshore wind farms (farm certification and staff training) that allows for a life-cycle analysis.
- **PROMETEO:** use of nanotechnology and composite materials in construction.

ACCIONA chairs the Energy Efficient Building Association (E2BA)

The E2BA was founded in 2008 as a not-for-profit trade group whose goal is to be the private component of a PPP (Public-Private Partnership) with the European Commission.


The E2BA arose from a prioritization exercise by the European Construction Technology Platform (ECTP), where ACCIONA is a member of the High-Level Group (HLG) and the Executive Committee (Excom). The ECTP members voted energy-efficient buildings as the top priority.

The goal of the ECTP is to initiate a procedure for establishing a PPP for the development of energy-efficient buildings, with two priorities:

- Develop, implement and optimize building and district concepts that have the technical, economic and societal potential to reduce drastically the energy consumption and CO₂ emissions from existing and new buildings in the European Union.
- Speed up research on key technologies and develop a competitive industry in the fields of energy efficient construction processes, products and services, with the main purpose of reaching the goals set by the EU.

This initiative is also part of the "European Economic Recovery Plan", which includes a proposal to create a PPP in the construction industry to research energy-efficient buildings, which has a budget of 1 billion euros for 2010-2013.

Energy-efficient buildings represented the option most voted by ECTP members



R&D and Innovation Strategic Plan

The revision of the R&D and Innovation Strategic Plan covers 2009-2013 and involves doubling the investment of the previous

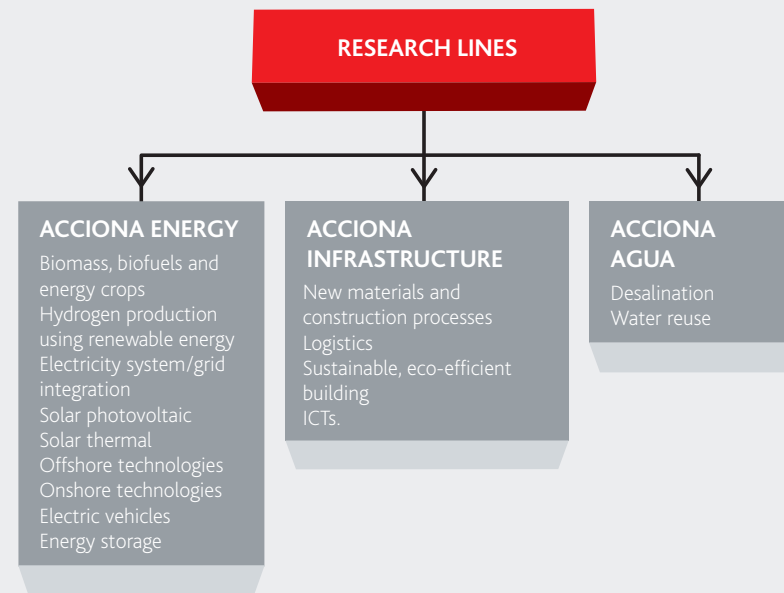
four years to 400 million euros. The plan is structured into three strategic lines of research: Energy, Infrastructure and Water.

Increasing competitiveness in Europe

To finance the Strategic Plan, ACCIONA obtained a loan of 185 million euros from the European Investment Bank (EIB). The EIB's objectives include supporting investment that aims to improve the European economy's competitiveness by supporting R&D and Innovation projects and giving priority to organisations that contribute to the creation of a sustainable economy.

The operation is unique in that the EIB is financing not one project but an entire programme of R&D and innovation projects covered by ACCIONA's Strategic Plan until 2013.

The funding agreement covers 15 lines of research within the Strategic Plan, in the Energy, Infrastructure and Water business units.

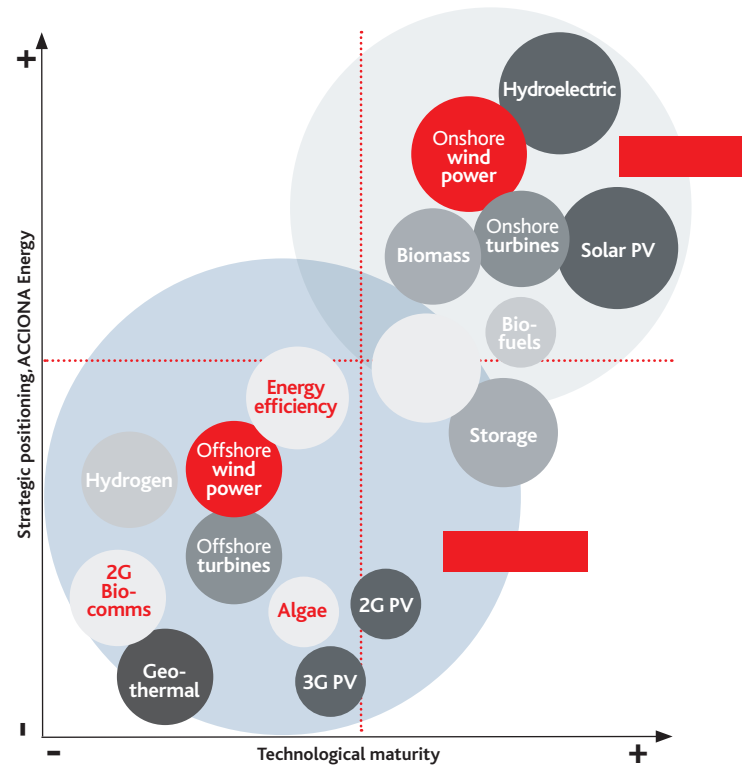


Renewable energy

In the area of renewable energy, ACCIONA's goal is to anticipate, develop and validate robust portfolios of technology to promote a sustainable energy model in each of its research lines. The main goals pursued by the defined research lines are as follows:


- Optimization of onshore wind power and development of offshore technologies (in combination with other maritime renewable energy sources: wave, current, tidal, etc.).
- Promote competitiveness in solar photovoltaic and solar thermal energy.
- Develop technologies for generating power from biomass, and for obtaining biofuels from algae.
- Promote research into energy storage as a means of integrating renewable energies and improving their efficiency.
- Promote research to prove the technical viability of electric vehicles and search for solutions to the problems of integrating them into the electricity grid on a large scale.

Technology map of ACCIONA's renewable energy 2009:
ACCIONA's position vs. maturity of available technologies



ACCIONA's mission is to promote sustainable energy models in each of its research lines

ACCIONA seeks to demonstrate the technical feasibility of Electric Vehicles



Promoting Electric Vehicles: The Smartcity project

ACCIONA wishes to show that grid-rechargeable electric vehicles are a technically viable approach to sustainable mobility.

This requires it to analyse and determine the requirements for integrating electric vehicles' micro-storage systems into existing electricity systems and to analyse their benefits and drawbacks and their effects on the electricity grid.

With this objective, ACCIONA is participating with 11 other companies in

the Smartcity consortium, whose aim is to implement a new energy management model that will provide greater efficiency, reduce CO₂ emissions and increase the use of renewable energies. This pioneering project pursues the development of infrastructures for electric cars.

The batteries in electric vehicles can constitute a storage system enabling large-scale management of renewable supply and demand by drawing on stored power when renewable output is lower than that demanded.

ACCIONA, leader in marine energy

ACCIONA heads a European research consortium (comprising 17 companies, technology centres and universities in 12 European countries) whose objective is to lay the technological foundations for viable, competitive deep-water integration of a range of renewable energies such as wind, wave and ocean currents.

The project, named MARINA (Marine Renewable Integrated Application Platform), has a total budget of 12.8 million euros and is co-financed by the European Commission as part of the EU's 7th Framework Programme (FP7).

Until the project is finalized in June 2014, the MARINA consortium will analyse a range of aspects related to harnessing offshore wind power in order to promote integration with other marine renewable energy technologies on deep-water platforms (depths of over 40 metres) tens of kilometres from the coast.

The MARINA project will research ways of harnessing renewable energies at sea, focusing particularly on synergies between different technologies in order to reduce costs and enhance economic viability.

MARINA involves a multi-disciplinary consortium specialised in various areas such as wind power, marine energy, offshore oil and gas infrastructure, oceanography, meteorology and marine biology, among others. It will involve over 30 researchers in twelve European countries working full-time for four years.

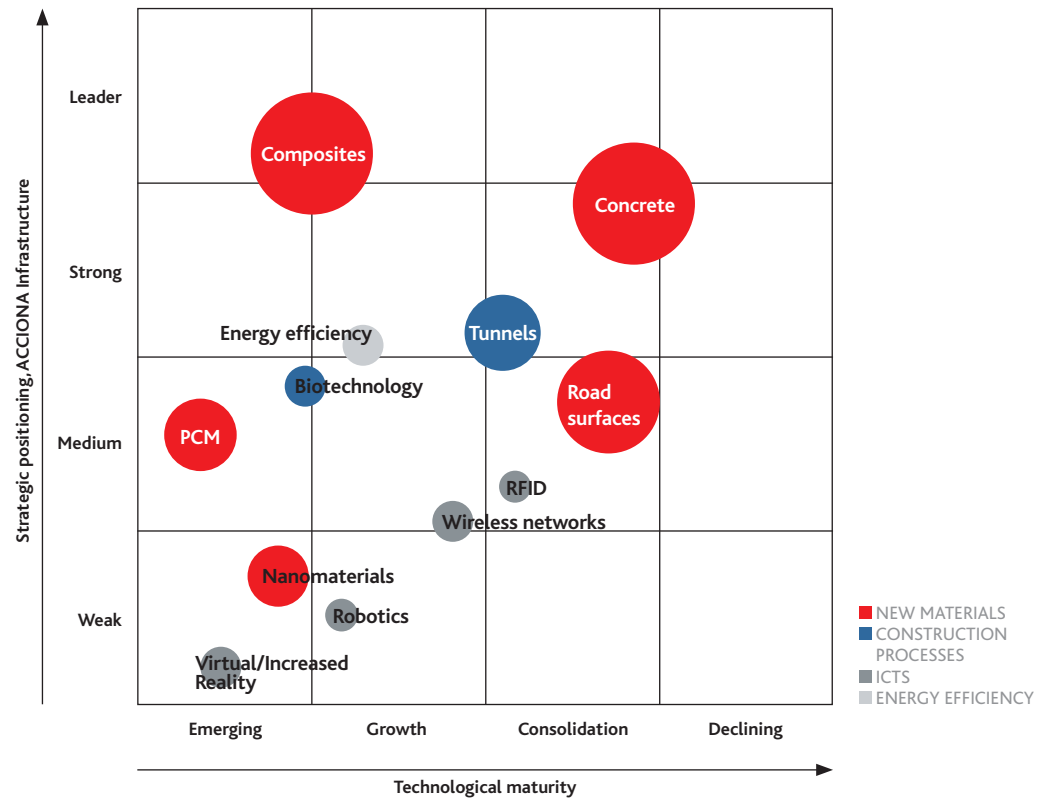
ACCIONA's ability to head this top-level consortium is evidence of its international prestige in the field of marine wind power technology and its leading position in these technologies in Spain.

Sustainable building

ACCIONA's strategy in the area of infrastructure construction is focused upon environmental impact abatement, energy efficiency and productivity enhancement in all the Company's projects. The defined lines of research pursue the following objectives:

- Development and application of more sustainable, powerful and durable materials in place of traditional materials.
- Design of more sustainable and efficient construction processes through the application of biotechnology and the reuse of waste materials.
- Promotion of energy-efficient building through the application of bioclimatic architecture, the inclusion of renewable energies, and the control and efficient use of energy.
- Application of leading-edge information technology to enhance construction process efficiency.

Technology map of sustainable construction 2009:
ACCIONA's strategic position vs. maturity of available technologies



New generation of lightweight concrete

ACCIONA's research projects into more sustainable construction materials include a new lightweight concrete made with fly ash from coal-fired power plants. This new material's main advantage is the low cost and the fact that its raw material is industrial waste. This lightweight concrete is more cost-effective than cellular concrete, phenolic core and polyurethane.

Lightweight concrete provides lighter structures, easier use on site and faster execution.

This material's potential uses include:

- Core for composites.
- Thermal and acoustic insulation.
- Roof panels and floor slabs.

Vibration-damping railway line using tyre waste

Another of the innovative projects developed by ACCIONA in 2009 involves the reuse and treatment of end-of-life tyres for use in railway lines.

This solution enhances modern slab track systems (in contrast with the classic ballast and sleeper system) by damping the vibration caused by passing trains.

The new ACCIONA-developed system coats the rail with a mixture of

used tyre and a polymer matrix.

The environmental advantage is that this system uses 15 tyres per linear metre of single track.

The system is particularly suited to urban environments, particularly in areas with heavy vehicle traffic and in areas susceptible to the transmission of vibration from the track to nearby homes and buildings.

ACCIONA has developed photocatalytic, intelligent façades which reduce polluting substances



Smart façades that reduce pollution and are self-cleaning

Many building façades produce pollutants as a result of the incident sunlight, in a photochemical process called photocatalysis.

Photochemical reactions can play a major role in the environmental balance; consequently, it is essential to reconsider the use of light for environmental purposes in building design.

To address this problem, ACCIONA has developed photocatalytic or "smart" façades, which can maintain their appearance for long periods of time and contribute to reducing the amount of noxious substances that pollute the atmosphere.

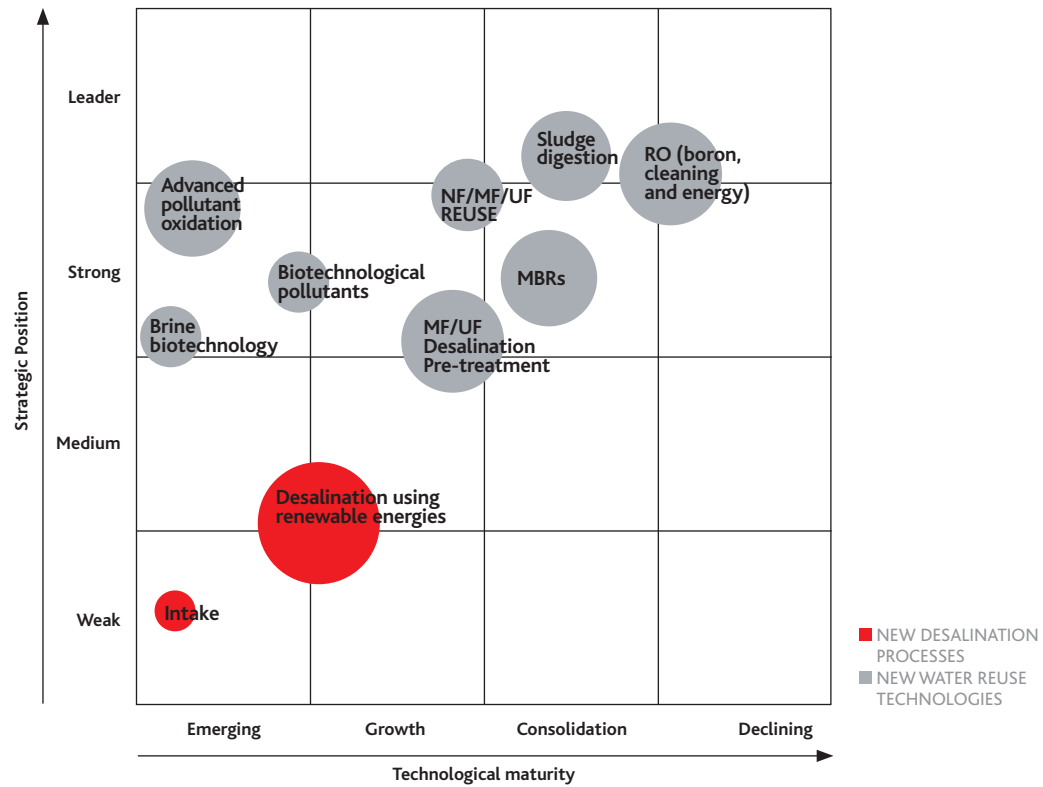
Water technology

ACCIONA's R&D and Innovation activities in the water business continue to focus on maintaining our technological lead in water treatment, purification and reuse while pursuing energy efficiency and environmental sustainability.

The main goals pursued by the research lines defined by ACCIONA Agua are as follows:

- Reduce energy consumption in desalination and develop natural, non-chemical treatments.
- Extend the application of reused water through membrane technology.

Water technology map 2009:
ACCIONA's strategic position vs. maturity of available technologies



SEPAFLOC® and NITROREMOVAL®, excellent results in desalination and water treatment

In 2009, ACCIONA registered the SEPAFLOC® trademark for advanced pre-treatment in seawater desalination that consists of a compact microfiltration membrane system using up to 9% less space and reducing the energy cost of desalination. The pre-treatment enhances the quality of the water intake, which reduces the cost of running the reverse osmosis membrane operation.

ACCIONA has also applied to register the NITROREMOVAL® brand for a new process to eliminate nitrogen from return water in sewage sludge processing lines; by enhancing nutrient elimination efficiency, this process can reduce capital costs by up to 25%.

ACCIONA to use leading-edge sustainable treatment techniques at the Arrudas sewage plant in Minas Gerais state, Brazil.

ACCIONA's experience and R&D are being applied to save 1.5 million euros of electricity per year and reduce CO₂ emissions by 6,400 metric tons per year at the Arrudas sewage plant in Minas Gerais, Brazil.

ACCIONA will incorporate an electricity cogeneration system using biogas-fired micro-turbines, plus ultrasound to optimize this fuel and an odour treatment system, the goal being to improve the environmental conditions for the local residents.

The main objectives of the 25-million-euros contract are to:

- improve sludge digestion, reducing final sludge volume and its pollutant load;
- reduce dry sludge output by around 10% using ultrasound, while also increasing biogas production by 10%;
- use the biogas to fire micro-turbines (the first application in Brazil of this technology, after the US, Spain and Germany), and;
- improve the area's environmental quality by avoiding the dispersal of unpleasant odours from untreated sewage.

ACCIONA seeks to reduce the plant's CO₂ emissions and electricity consumption using proprietary technology. The project will provide a clean source of energy.

ACCIONA's research centres

ACCIONA has three Technology Centres which are the mainstays of its research activities: Madrid, Pamplona and Barcelona.

The **Madrid Technology Centre**, leads technology development in the infrastructure, real estate, transport and environment areas. Research conducted at the Centre aims primarily to: reduce natural resource and energy consumption; limit CO₂ emissions, and; mitigate the life-cycle costs of the Company's products and projects.

The Centre has 3,500m² of offices and laboratories, and a 1,200m² workshop to manufacture and test full-scale prototypes. There are 12 labs altogether, outfitted with cutting-edge equipment, which work on developing advanced materials, improving industrial processes and researching areas

such as eco-efficient construction and biotechnology. The Madrid Technology Centre employs more than 160 highly-qualified professionals from more than 10 countries. It also has two new laboratories, specialized in robotics and virtual reality, areas in which ACCIONA has already commenced research.

The **Pamplona Technology Centre** is the core of ACCIONA's R&D and Innovation activities in the field of renewable energies; most of the strategic research in this area takes place there. It also has facilities that specialize in wind turbine generator development (Barasoain), biofuels (Caparroso), biomass (Sangüesa), engineering maintenance (Mutilva), as well as experimental facilities at wind farms in Aizkibel, Aibar, Peñablanca, Codés, Moncayuelo and Vedadillo.

It also develops horizontal technologies with an impact on energy development (materials, nanotechnology, biotechnology, and information and communication technologies).

The **Barcelona Technology Centre** focuses on R&D and Innovation in the field of water management. These include applications of renewable energy in desalination, reuse of wastewater using membrane technology, and new, membrane-based pre-treatments and tertiary treatments. The Barcelona Centre has central laboratories in Prat de Llobregat and a number of pilot plants, most notably the La Tordera (Barcelona) facility for field tests. The Prat laboratory is a leading centre for research into membrane technology and is fitted out with the latest analytical methods and equipment.

ACCIONA, striving for excellence in management

ACCIONA's innovation management systems are designed to coordinate and dynamize research throughout the company.

ACCIONA's R&D and Innovation management system conforms to the requirements of the UNE 166.002:2006 standard and is applied to all Research, Development and Innovation activities performed in the following Business Units:

- ACCIONA Infrastructure.
- ACCIONA Energy.
- ACCIONA Windpower.
- ACCIONA Agua.
- ACCIONA Installation Services.

In 2009, ACCIONA Infrastructure, ACCIONA Agua, ACCIONA Windpower and ACCIONA Energy renewed the R&D and Innovation management system's certification under the UNE 166.002:2006 standard. Additionally, ACCIONA Installations obtained certification from AENOR of its R&D and Innovation management system according to the standard.

ACCIONA is a member of The Corporate Executive Board, an executive network of contacts and best practices focused on R&D which was founded in 1983; over 80% of the Fortune 500 companies are members.

R&D and Innovation Management System

