



Activity Report 2009  
**ABENGOA**

## **7.5** Industrial Engineering and Construction

Abeinsa is an Industrial and Technological Business Group that offers fully-comprehensive solutions in the fields of Energy, Transportation, Telecommunications, Industry, Services and the Environment. Its highly innovative solutions are geared towards sustainable development and help generate value for customers, shareholders and employees, thereby guaranteeing the company's international expansion and future success and the profitability of its investments.

[www.abeinsa.com](http://www.abeinsa.com)

## International Presence



**Key figures 2009**

Revenue (M€) <sup>(1)</sup>	2,576
Gross Cash Flows (M€) <sup>(1)</sup>	363
Project Back-log (M€)	6,311
New Contracts (M€)	3,464
Average number of employees	10,256
Hours of training <sup>(2)</sup>	534,586

(1) Include corporate activity and consolidation adjustments

(2) Including the corporative area



## Our Business

Over the course of 2009, a year marked by sluggish markets and investment in general, Abeinsa successfully overcame these hurdles and managed to report business growth, closing the year with a total of €2,681 M in sales, €3,464 M in new contracts and €6,311 M in back-log, representing an increase in turnover of over 30 % and ensuring the company's continued growth for the years ahead. The company focuses on projects offering high returns while working to increase its international standing.

The prevailing economic and financial climate is having a positive and negative impact on Abeinsa's business. On the one hand, investment and current projects under negotiation or in progress have ground to a halt and competition is stiffening, while customers are experiencing huge difficulties in acquiring funding and insolvency risk is running high. Yet on the other hand, there have been signs of increased public spending in infrastructure in the mid-term and a surge in renewable energies, factors that Abeinsa is relying on as the cornerstones for its future growth, which will be based on innovative solutions, a full range of high added value services, consolidated international presence and fluid relations with both customers and suppliers.

Abeinsa specializes in the engineering, construction and maintenance of electrical and mechanical infrastructures and instruments for the energy, industrial, transportation and services sectors. It also develops, constructs and operates industrial plants, conventional

power facilities (cogeneration and combined cycle), and renewable energy plants (bioethanol, biodiesel, biomass and wind and solar power), while also managing “turn-key” telecommunications networks and projects.

Abeinsa is therefore able to offer clean energy solutions by applying its technological knowledge to the following fields:

- Design and construction of electrical power plants based on renewable energies, capable of generating thousands of MWh of clean energy.
- Design and construction of biofuel plants that help to combat climate change.
- Design and construction of cleaner and more efficient power plants.
- Design and construction of efficient power lines that help to reduce energy consumption.

Abeinsa also conducts research in different fields and develops and applies new technologies to help combat climate change:

- Through Zeroemissions, it contributes to reducing emissions of CO<sub>2</sub> and other greenhouse gases, thereby working towards compliance with the Kyoto Protocol.
- Through Hynergreen, a market leader in hydrogen technology, with groundbreaking R&D projects in clean energy generation through fuel cells.
- Through the development of new technologies associated with efficiency.
- Through research into new renewable energies.

By following this approach, the group invests in markets where it can contribute to sustainable development, where technology and innovation make a genuine difference and where it can grow globally and become an international market leader in the long-term.

Abeinsa structures its business around six divisions or business lines: Energy, Installations, Marketing and Ancillary Manufacturing, Telecommunications, Latin America & Abeinsa New Horizons.



Abeinsa conducts business in over 30 countries and on all five continents, while operating in highly diverse social, cultural and economic environments. In this respect, the company applies global standards, policies and practices without overlooking local concerns. This allows it to understand and respond to the specific needs of the different communities it is involved with in the different stages of its business.

Company growth is based on geographic and business diversification, focusing at all times on the need to provide technological solutions that feature high levels of innovation and help to champion sustainable development.

Its extensive experience enables it to respond to the needs of its customers by developing innovative solutions. Its customer base includes most of the world's leading companies in those sectors in which Abeinsa operates, and mainly encompasses public administrations and large corporations in a raft of different industrial sectors, ranging from the environment to energy generation.

Abeinsa is fully aware of the importance of attracting and retaining talent and has adopted a competency-based human resources model, allowing it to match post to person. Its policies relating to human resources underscore the following:

- Enhancing, harnessing and conveying knowledge.
- Developing talent and competencies.
- Incorporating and integrating professionals ideally suited to each job, mission and responsibility.
- Transforming Abeinsa into a company that provides excellent conditions for personal and professional development and offers enticing conditions and working environments and an attractive human resource management model.

One of the consequences of the current widespread doubt is the huge importance being attached to risk prevention and control. Abeinsa adopts the strictest possible measures to mitigate risks by relying on Abengoa's joint management systems, avoiding contact with customers that display even the slightest signs of credit risk, taking extreme care when formulating offers and stepping up cost control processes when performing projects.



Abeinsa is unflinchingly committed to all its stakeholders and relations with them are underpinned by the principles of transparency, accuracy and professionalism.

Abeinsa ultimately intends to set itself up as a guiding light, with a corporate culture and management model that mirror its commitment to sustainable development and generate credibility, trust and respect throughout the markets, businesses and communities in which it operates.

Despite the fact that the net effect of external factors over 2009 was negative, Abeinsa has devised a suitable strategy for tackling 2010, based on the following key priorities:

- Strengthening technical, commercial and strategic alliances to diversify products and markets.
- Consolidating and stepping up business in the international markets where it already operates, while continuing to explore and expand into new international markets.
- Launching new lines of R&D&I.
- Not overlooking traditional markets by developing and following specific strategic plans for these traditional lines of business.



## 2009 in Review

During 2009, Abeinsa managed to maintain the levels of performance and international expansion that have characterized the company over recent years and reported significant growth in turnover and its project portfolio, enabling it to view the future with renewed optimism.



The winning combination of the talent and dedication of Abeinsa's human team is one of the driving forces behind the company's success in executing its projects. Among the numerous projects performed over 2009, we would highlight:

- Construction of Abengoa Solar's Solnova 1, Solnova 3 and Solnova 4 solar thermal power plants, all featuring parabolic trough technology and each with a power output of 50 MW.
- Construction of two solar thermal power plants utilizing ISCC technology, the first in Ain Beni Mathar (Morocco), with 470 MW of power, and the other in Hassi R'Mel (Algeria), with 150 MW of power.
- Construction completed on two bioethanol plants for Abengoa Bioenergy in the United States (Illinois and Indiana, each with a production capacity of 88 Kgal) and construction of a bioethanol plant in Rotterdam (The Netherlands), with a capacity of 126.8 Kgal, also for Abengoa Bioenergy.
- Construction of the Carhuamayo-Paragsha-Conococha-Huallanca-Cajamarca-Cerro Corona-Carhuaquero transmission line in Peru. The line is approximately 670 km in length and traverses Peru's northern mountain range at an average elevation of 3,000 m above sea level.
- Construction of package II of the electrical interconnection system for the countries of Central America (Siepac), a project requiring the installation of 950 km of 230 kV line across Nicaragua, Costa Rica and Panama.





The satisfaction of our customers after successfully completing their projects has enabled Abeinsa to secure major contracts over the year, of which we would highlight:

- The state-owned corporation Petróleos Mexicanos (PEMEX) awarded a contract to a consortium comprising Abener and Abengoa México to construct and operate, over 20 years, a 300 MW cogeneration plant in the state of Tabasco, Mexico. The new facility will transform demineralized/condensed water into steam and natural gas into electrical energy. This will then be supplied to the Nuevo PEMEX gas facility, which the Mexican corporation operates in the state of Tabasco. The future plant will be capable of generating between 550 and 800 t of steam per hour.
- The Brazilian Electricity Regulatory Agency (Agência Nacional de Energia Elétrica, or ANEEL) awarded the Porto Velho-Juruá consortium (25.5 % Abengoa Brasil, 25.5 % Companhia de Transmissão Elétrica Paulista and 49 % Eletronorte) a contract to construct and operate two sections of 230 kV electric transmission line, with a combined length of 1,500 km.
- Instalaciones Inabensa was awarded the contract for the A4 and A7 packages of an 800 kV direct current transmission line running from Biswanath Chariyali to Agra and from Gorakhpur to the Gomti River in India. The projects require the company to construct a total of 401 km of direct current power lines and, together with the 2,375 km 600 kV power line currently commencing construction in Brazil, helps to consolidate Abeinsa's position as one of the leading companies worldwide in the construction of such direct current lines.
- The Argentine Federal Office for Electrical Energy (Consejo Federal de la Energía Eléctrica, or CFEE) commissioned Teyma Abengoa, Abeinsa's subsidiary in Argentina, to construct the southern section of the Comahue-Cuyo electric interconnection line, a project that falls within the federal plan to transport electrical power at 500 kV, with an approximate length of 518 km.

This increase in business has allowed Abeinsa to consolidate its standing as a world market leader. According to the 2009 ENR (Engineering News-Record) ranking, Abeinsa is ranked as the largest international construction firm for transmission and distribution, the second largest in electrical infrastructures and the ninth largest contractor in Latin America.



Abeinsa's strategy of geographic and business diversification over recent years has been reflected in the arrival of new subsidiaries and the acquisition of new companies in 2009:

- The business group has strengthened its presence in North America by opening new subsidiaries: Teyma USA, which offers third parties engineering and construction services under "turn-key" industrial projects, particularly in the field of renewable energies, solar energy, biofuels and generation technologies, civil, electric, hydraulic, architectural infrastructure and urban services; and Abengoa T&D, which operates in the electric transmission line engineering and construction sector, with the added value of offering core components in power line installation, these being the structures supplied by Comemsa. Abengoa T&D is therefore seeking to replicate the electricity market business model in other territories, thereby consolidating its leadership throughout the Americas.
- Through Inabensa's new subsidiary in Australia, Abeinsa has boosted its international presence and now boasts operations on all five continents.
- 2009 marked completion of the negotiations in which Abengoa Chile acquired the company Servicios de Ingeniería SDI-IMA, a key player in the Chilean electrical infrastructure engineering sector, thus reinforcing and strengthening its continued development.
- Abengoa Brasil created Omega, a management, operation and maintenance firm located in Rio de Janeiro, which includes the operations center and is able to operate electric transmission lines located in any part of the country.
- Nicsa incorporated its subsidiary company in Brazil, Nicsa Fornecimento do Materiais Eletricos, with which it hopes to consolidate its international standing as a supplier of electrical material, instrumentation and communications for heavy industry in general.
- At the start of the year, Hynergreen acquired part of the Dutch company HyGear, which specializes in the development of hydrogen production systems through natural gas reforming, the aim being to join forces in developing reactors and compact systems for hydrogen technologies.
- Zeroemissions strengthened its geographic presence over the year, and now has subsidiaries in Rio de Janeiro, Beijing, Bombay, Moscow, Brussels and New York.

## Our Activities

Abeinsa is an international company specialized in industrial engineering and construction. Its business revolves around six divisions or lines of activity: Energy, Installations, Telecommunications, Marketing and Ancillary Manufacturing, Latin America, and New Horizons.

1. Energy. Integrated solutions in the energy sector, including the promotion, funding, engineering, construction and operation of new power plants and industrial facilities, with special emphasis on the solar and biofuel sectors, and streamlining of existing facilities.
2. Installations. Engineering, construction and maintenance of electric and mechanical infrastructures and instrumentation for the energy, industry, transportation and services sectors, as well as the installation of insulation, refractory and passive fire protection materials.
3. Marketing and Ancillary Manufacturing. Marketing of products associated with the activities described above and manufacture of auxiliary elements for energy and telecommunications.
4. Telecommunications. Integration of telecommunication networks and "turn-key" projects.
5. Latin America. A market in which the company has maintained a solid presence for more than forty years through local companies that carry out all the Business Unit's activities with full autonomy.
6. Abeinsa New Horizons. Develops innovative projects relating to sustainable development: hydrogen technologies, energy efficiency, carbon credit management, CO<sub>2</sub> capture and valorization, and new renewable energies, such as ocean energy.

## Energy

This business line focuses primarily on the development, design, construction and maintenance of industrial plants and conventional energy (cogeneration and combined cycle) and renewable energy (bioethanol, biomass, solar, and geothermal) power plants.



Demand for energy infrastructures geared towards sustainability and renewable energies has increased sharply on the international stage, both in the more developed countries and in emerging or developing economies. Abeinsa, through Abener, has rolled out a plan to heighten its international presence, with its geographic expansion focusing on the following territories: Eastern Europe, the Middle East, North Africa-Maghreb, Latin America, the United States and emerging countries such as China and India.

The Operation and Maintenance (O&M) business line applied to generation plants includes preventive, scheduled and corrective maintenance of equipment and systems, and the operation thereof to ensure the facility operates reliably and meets its technical specifications with a view to minimizing fuel consumption and Greenhouse Gas (GHG) emissions while maximizing the load factor.

### **Abener Energía**

For Abener, a market leader in engineering and construction for sustainable development, 2009 signaled a turning point. It completed highly innovative projects, penetrated new emerging markets and contributed to the environment, all key to its continued consolidation on the international market.

Abener operates in three areas: solar, biofuels and generation.

As regards solar business in the Maghreb, the company has fully established its standing by constructing two groundbreaking projects: the world's first two ISCC (Integrated Solar Combined Cycle) plants, located in Algeria and Morocco and which it has developed in collaboration with other group companies. Abener's ventures in North Africa are prime examples of its capacity to tackle the challenges facing it in the present, given that there is no prior experience of ISCC facilities.

Brazil and North America are the world's largest markets in terms of bioethanol production and consumption and already Abener has fully consolidated its position in them, with numerous projects that are progressing very satisfactorily. Moreover, Abener is continuing to construct Europe's largest bioethanol plant in Rotterdam (The Netherlands).

In Mexico and the rest of Latin America, Abener has an extensive portfolio of generation projects, ranging from upgrade work and simple/combined cycles to motor and cogeneration plants. The operational success of these industrial plants is a fine illustration of Abener's formidable capacity in this business area. A further example of this is the fact that Abener, through a consortium with Abengoa México, has been awarded the new 300 MW cogeneration project for PEMEX (Petróleos Mexicanos).



### **Operation and Maintenance**

During 2009, the O&M Division conducted its business at four different plants: Three cogeneration plants located in Alcantarilla (Murcia), Ayamonte (Huelva) and Cuevas de Almanzora (Almería), all in Spain, and the Ain Beni Mathar ISCC plant in Morocco. The total power output of all these facilities amounts to 502 MWe.

The company is currently selecting the staff that will make up the O&M team of the 150 MW ISCC plant at Hassi R'Mel (Algeria). Abengoa's experience in handling the O&M of these plants in North Africa will be enormously useful for developing solar energy production facilities within this market, one of the strategic horizons offering the best operational opportunities for the company.



## Installations

This is the business line in which Abengoa commenced its industrial activity back in 1941. The parent company is Inabensa, S. A. and it engages in the group's core activities, mainly engineering, construction and maintenance of electric and mechanical infrastructures and instrumentation for the energy, industry, transportation and services sectors, but also the installation of refractory, insulation and passive fire protection materials.

### Inabensa

Year after year, Inabensa has been strengthening its standing as one of the companies with the greatest experience in the electricity sector, having inherited both know-how and tradition from Abengoa, its parent company and the market leader since 1941, which passed on the torch to Instalaciones Inabensa in 1994.



### Electric Installations

Within this sector, we would highlight the high and low voltage customized electric installations performed by the Regional South Department for the Campus de la Salud hospital complex in Granada, the electric installations for Nestlé in Cáceres, Heineken's new Cruzcampo factory in Seville (Project Jumbo), or the high voltage installations at the home for the elderly in Algeciras for the Regional Government of Andalusia, to name but a few.

For a further year, electric installations proved to be of vital importance to the overall business of the Regional Department for Eastern Spain. Within the industrial sector, we would highlight the electrical upgrade work on the Ford factory in Almusafes for the Fiesta and C-Max Project, the work on the new cooked and sliced food production facilities of the company El Pozo Alimentación S. A. and also the new power station for Alicante airport, with its network of distribution galleries for electrical services.

Once again, Metro de Madrid entrusted Inabensa with work on two Underground lines. Firstly, renovation work on the electric installations at the stations of Chueca, La Latina and Callao on line 5 had to be finished, and on the other, line 6 required renovation work on the tunnel lighting system between Guzmán El Bueno and Puerta del Ángel.

The Regional Department for Catalonia and Aragón was involved in maintenance and construction work on the high voltage overhead lines for Fecsa-Endesa, the alternative high voltage distribution lines resulting from the services affected by the construction of the high-speed AVE Madrid-Barcelona-French Border line for Adif (the Spanish railway infrastructure administrator) and underground ducting and stringing of the 220 kV incoming supply lines at the Zona Franca (free trade zone) substation.

### Large HV Lines

In the electricity lines sector, Inabensa has continued to lend its support to the development of the Spanish transmission network by taking part in some of the most important projects in which the Spanish Power Transmission Company (Red Eléctrica de España, or REE) is currently involved. Worthy of particular note is the continuation of the cable hoisting and stringing work on the 400 kV Soto-Penagos line, on the compaction section with the Aguayo-Penagos line, as well as the work on the 400 kV Pesoz-Salas, Sentmenat-Vic-Bescanó, Penagos-Güeñes, Arcos-La Roda and Tordesillas-Aparecida lines and the inputs and outputs at the Torrente substation.

Abeinsa would also single out the reconstruction work on the 220 kV Begues-Collblanc and Begues-Castellbisbal lines in Catalonia and the San Vicente-Jijona-Catadau line in the eastern coastal region as a result of hurricane Delta at the start of 2009, along with the construction of an alternative to the 220 kV Bellicens-Constantí line, with connection of the ends under service conditions.



### Rail

The main highlight of Inabensa's railway business over 2009 was the contract awarded by Adif to construct the installations for the overhead contact line and associated systems for the new AVE Madrid-Eastern Coast railway access (Spanish high-speed railway), on the Motilla del Palancar-Valencia and Motilla del Palancar-Albacete sections.

As regards conventional lines for Adif, Abeinsa would highlight the rehabilitation and upgrade work on the overhead contact wire system of the Gallur-Castellón section, the full renovation and independent compensation project for the catenary on the Mataporquera-Reinosa section of the Palencia-Santander line, and renovation work on the catenary system of the El Escorial-Santa María de la Alameda section of the Madrid-Irún line.

Other highlights of 2009 included further business for Inabensa in the high-speed voltage maintenance market, with four-year contracts to carry out maintenance work on the Madrid-Barcelona and Madrid-Valladolid lines.



### Maintenance and Instrumentation

Highlights here include various projects at storage stations for CLH, electrical installation work on the Cepsa-San Roque vacuum plant, electric installation and instrumentation work on the thermal storage plant in Sanlúcar La Mayor and electric installation and instrumentation work on the solar field of parabolic troughs at the Solnova 1 solar power plant.

The Almaraz and Trillo nuclear power plants were once again key pieces in the nuclear energy sector for 2009, with the numerous services rendered including maintenance and instrumentation, operation and loading, modifications to electric designs and operation of different computerized process systems.



### Insulation, Refractory and Passive Fire Protection

The most significant business over 2009 at Protisa was the heat insulation work for piping and equipment, with activities focusing on the different solar power plants at Abengoa Solar's solar platform, where the company insulated the Solnova 1, Solnova 3 and Solnova 4 solar fields and the power islands of Solnova 3 and 4.

In the field of passive fire protection (PFP), fireproofing work continued on the extension to the Cepsa refinery at the La Rábida facilities and the company also conducted maintenance work on the fireproofing at the Gibraltar refinery, all within the framework of the master agreement signed with Cepsa.

### Mechanical Installations

In 2009, the Mechanical Assemblies Division constructed the solar fields for the Solnova 3 and 4 plants, and manufactured, supplied and installed all the piping for the heat transfer fluid (HTF) of the three plants. Nearly 30.5 km of piping was required for this project, with diameters ranging from half an inch to 26 inches. The total length to be welded and fully X-rayed amounts to 135,000 inches.

In the installations sector, the Mechanical Assemblies division collaborated on a project to reform the installations of the old Vigil de Quiñones hospital and bring it in line with existing regulations.





### Concessions

Within the Service Concessions Division, highlights include the contract to construct and operate the Mexiquense Cultural Center in Texcoco, Mexico.

Construction work also continued on the Costa del Sol hospital in Marbella, which is scheduled for completion in 2010.

The company also constructed the Campus Palmas Altas photovoltaic plant, implemented energy efficiency projects and began to develop various wind farms.

### Manufacturing

Over 2009, Inabensa's Manufacturing Division supplied Red Eléctrica Española (REE) with auxiliary services cabinets, protection relay frames and distribution boxes, all within the framework of the Asset Integration Project (AIP) covering several substations.



### Overseas

Year after year, business overseas has helped to strengthen the company's standing in its strategic markets.

The group has continued to expand operations overseas with a host of important projects, including, in particular, the continuation of the Siepac projects in Central America (across Nicaragua, Costa Rica and Panama) and Libya (construction of the 400 kV single circuit Misurata-Surt-Ras Lanouf-Agdabia line, scheduled for completion in 2010).

In Serbia, the scope of the contracted work includes engineering, supply of materials and civil construction work, hoisting of supports and stringing of conductors for the 400 kV single circuit Leskovac-Vranje-Macedonian Border line, spanning 100 km in length. The project is being financed by the European Agency for the Reconstruction of Serbia, an official body attached to the European Union.

### Inabensa Maroc

In 2009, Inabensa Maroc was awarded a two-year contract with the operator Meditel to install fiber optics in various Moroccan cities. Together with the construction of Sites GSM, the project consolidates Inabensa Maroc's standing as a benchmark company in the development of telecommunications infrastructures in the country.

The company secured a new customer in the energy sector in 2009 (the steel company Maghreb Steel) to bolster business in the field of high voltage transmission lines for the Moroccan freeway authority.

### Inabensa Bharat

Inabensa Bharat is currently completing work on the 400 kV D/C (135 km) Baripada-Mendhasal transmission line for Powergrid Corporation of India Ltd.

A further highlight of the year was the contract secured by Inabensa Bharat to install two sections on the 401-km 800 kV D/C two-pole Biswanath-Chariyali line, consisting of six 37-mm diameter wires per pole. Both projects are currently in their initial phase and each of the awarded sections will last approximately 30 months.

### Inabensa Tianjin

Over 2009, the group's subsidiary in China, Inabensa Tianjin, continued to report impressive growth in its manufacturing business. Among the many projects performed over 2009, we would single out the manufacture, through Telvent, of RMY local traffic control regulators in Spain, or the production of motor control centers and turbine control equipment for a variety of projects in Iraq and Pakistan.

Furthermore, Inabensa Tianjin was awarded the ISO 9001 and CCC (China Compulsory Certification) quality standards for low voltage motor control centers, enabling the company to commercialize this equipment in the domestic market with local customers, thereby opening up an important path for further business development.

### Inabensa France

The most significant engineering projects secured by the French subsidiary over 2009 include the project currently underway to modify the 2x400 kV Coulange-Pivoz Cordier line, where the company is assessing the possibility of changing conductors for high capacity ACSS 687R or ACCR 1023/T23 wires. With regards to high voltage overhead lines, we would highlight the company's involvement in the reinforcement work on the 400 kV Tamareau-Tavel, Avelin-Warande-Weppes and Eguzon-Rueyres lines and the construction of the 63 kV Bergé-Dax line.

### Inabensa Abu Dhabi

In 2009, Inabensa's subsidiary in the United Arab Emirates continued to consolidate its position as a benchmark integrator of electrical engineering and telecommunications projects, having successfully designed a fiber optic network for ADWEA and installed 16 new substations to complement the medium voltage grid for ADDC in the western region of the Emirate of Abu Dhabi.

The Arab Emirates transmission grid operator, Transco, awarded the company a contract to install two 132 kV overhead lines over 71 km of mountainous terrain on the ocean coastline of the Emirate of Fujairah, the aim of the project being to link the capital city with the city of Dibba.

These projects help to strengthen the company's presence and underscore its commitment to the country and will act as the building blocks for growth in other countries in the Persian Gulf.



## Inabensa I+D

In 2009, Inabensa's R&D Department was involved in a host of strategic projects and initiatives to improve the company's future business growth, such as energy efficiency and CO<sub>2</sub> capture and valorization. 2009 also saw the company take its first steps towards establishing a technological presence in marine energies.

## Telecommunications

This line of business is committed to integrating "turn-key" telecommunication networks and projects. The activity is carried out by Abentel and by Inabensa's Communications Division.

Abentel continued to carry out its traditional outdoor plant construction and maintenance business over 2009 and was also involved in the provision and maintenance of customer loops and equipment. Within this latter field, the company reported a sharp increase in the installation and maintenance of ADSL broadband and its range of associated products.

## Abentel

During the year, the company continued to work on the 2007-2012 Global Customer Loop Agreement with Telefónica de España S. A. U., with implementation continuing in the provinces of Alicante, Badajoz, Barcelona, Cádiz, Jaén, Madrid, Seville, Tenerife and Valencia. Abentel is Telefónica's chief collaborator on this agreement in Spain.



Within the scope of the agreement, the company took part in the project to install and maintain the new VDSL+ networks to double, or even triple, the channel bandwidth of ADSL and Imagenio customers, benefitting residential and corporate users alike. This improvement to Telefónica's copper wire network allowed it to improve its customer ratio for the year.

Moreover, and as a result of Abengoa's sustainability policy, Abentel started to renew the vehicle fleet of the customer equipment installation and maintenance technicians for Telefónica de España. Deployment of this new fleet started in Madrid, where 33 diesel-powered vehicles have been replaced by others with engines adapted for E85 bioethanol. Work will continue in the near future to replace existing vehicle fleets at Abentel's other work centers.

Thanks to this move, Abentel is helping to curb Greenhouse Gas (GHG) emissions through its greenhouse gas reduction policy, thus helping to improve the environment for the benefit of society in general.

### **Inabensa Communications Division**

Despite the slump experienced within the sector, Inabensa's Communications Division has continued to attract impressive levels of business from telecommunications operators, chiefly Vodafone and Orange, and the leading technology firms: Nokia-Siemens Networks, Ericsson and Huawei.

Highlight projects of the year included engineering and installation work on Vodafone's fiber optic network and the work to bring mobile telephone coverage to the Atocha-Chamartín tunnels and Madrid's commuter railway network.

A further highlight was the contract covering central Spain and Extremadura to carry out maintenance work on the wireline and mobile networks of Orange. The company also strengthened its standing in the railway transportation sector by taking part in various projects, including GSM-R communications for the Barcelona commuter railway network (Seitt/Adif), communications for the Jaén tramway system (regional government of Andalucía) and the installation of coverage and communications infrastructures for the Metronorte northern extension to Madrid Underground and line 11 of Madrid Underground (Mintra).

### **Marketing and Ancillary Manufacturing**

Within this field, Abeinsa primarily manufactures and markets products related with the Business Unit's activities, while also producing auxiliary elements for energy and telecommunications.

Nicsa maintained its dominant position in the Spanish market and consolidated its international presence as a supplier of electric materials, instrumentation and communications for the chemical and petrochemical industries, refineries, combined cycle, solar thermal, nuclear and thermal power plants and heavy industry in general.

Abencor continues to focus its business model on those markets associated with sustainable development. It has likewise increased both procurement and sales, particularly within the international market, with operations centering on Latin America and other developing countries, such as Russia, China and India, where the company has permanent operations in place, enabling it to penetrate markets undergoing rapid expansion.

Over 2009, Eucomsa managed to consolidate its position as a leading supplier of structures for the Solnova 1, Solnova 3 and Solnova 4 solar power plants. It coordinated the work with Comemsa, its subsidiary in Mexico, with the exception of Solnova 4, which was supplied exclusively by Eucomsa. The work over 2009 followed on from the projects rolled out in 2008 and has led to a significant jump in turnover.

Driven forward by its traditional focus on exports, Comemsa has continued to flourish in the North American and Latin American markets. With a view to serving these markets more directly and in accordance with their particular needs, 2009 witnessed the creation of the company Power Structures Inc., PS, in the United States. PS will be responsible for marketing the component structures of Abengoa's electric power lines in the U.S. and for providing clients with expert technical support.

### Nicsa

2009 was an exceptional year for Nicsa, with highlight projects including:

- Project to extend the Repsol refinery in Cartagena, Murcia (Project C10). Nicsa signed its biggest ever contract with Repsol and the Técnicas Reunidas group. The company was awarded a contract to supply all the energy wires, instrumentation, lighting, cable trays and conduits. It also supplies junction boxes, compression glands, control stations, power outlets, panels, capacitor batteries and direct current supply boxes.
- Fuel Oil Reduction Unit project for Petronor, Repsol's refinery in Bilbao. Fully-comprehensive agreement to supply all the necessary electrical equipment and instrumentation assembly work for the project. The scope includes electrical and instrumentation cables, grounding, trays, conduits, wiring, junction boxes, compression glands, switching stations and power outlets.
- Técnicas Reunidas: Besos combined cycle power plant (Barcelona) for Endesa; Barcelona combined cycle power plant for Gas Natural; Montoir de Bretagne combined cycle power plant for EDF (France). The contracts include the supply of cables, wiring, trays, conduits, junction boxes, pushbutton stations, boxes for instrumentation and electric heat tracing.



A key driving force behind Nicsa's growth over 2009 was the performance of its subsidiaries overseas: Nicsa México successfully completed the supply work and services for the "Reconfiguration of the General Lázaro Cárdenas Refinery, Package III" project for Dragados Industrial; Nicsa Industrial Supplies, in North America, extended its corporate presence by making significant inroads into the U.S. market; Also worthy of note was the incorporation in October 2009 of Nicsa's subsidiary company in Brazil, Nicsa Fornecimento do Materiais Eletricos.

## **Abencor**

Highlight projects for Abencor over 2009 include:

- Procurement and supply of over 500 MVA of power transformers, both in Spain and overseas. The company supplied the Pestera and Cemavoda transformers in Romania for the EDP group and also the Torremadrina, Ibiza and Portillo transformers for Endesa in Spain.
- Sale of 66 kV and 220 kV insulated cables, along with the corresponding terminals. The agreements not only include the supply of the cables, but also supervision and assembly work and preparation of the junction points for the substations on the Barcelona-Figueras section of the high-speed AVE railway line currently under construction.
- The Energy Efficiency Division supplied four special industrial ventilators for the Rotterdam biofuel plant, which Abengoa is currently constructing.

## **Eucomsa**

In the traditional pylon and tower market, the company has successfully kept up with the exceptional demand from the Spanish Electricity Grid (Red Eléctrica de España, or REE) over the last two years and remains upbeat that future investment will enable it to maintain current levels of business.



The Sheeting division continued to supply fiber optic distribution cabinets for Telefónica and other consumers. It also disinvested its signage business line and dismantled its painting installations, leaving space for new business activities or to extend the existing capacity of its solar business.

As regards testing stations, business for 2009 outperformed previous years, with the company conducting extensive testing work, including, in particular, tests on the Lázaro-Cárdenas line for Abengoa México, the Tía María line for Abengoa Perú, the 2C21 tower for Comemsa in Mexico and a host of pylons and towers for the likes of Unión Fenosa, Jovir, Tranluz, Semi and Andel.

## **Comemsa**

During 2009, Comemsa supplied equipment under two major projects for Abengoa companies: The Siepac project signed with Inabensa relating to the electric interconnection system for Central America for a grand total of over 11,000 t and the Solnova 1 and Solnova 3 solar thermal plants and the hybrid Hassi R'Mel (Algeria) and Ain Beni Mathar (Morocco) plants, for a total of 11,700 t, both contracted with Abener.

The most important projects performed in 2009 included the 68 RTA 718 El Pacifico line (Phase Two) "turn-key" project secured by Abengoa México from the Mexican Federal Electricity Confederation (Confederación Federal de Electricidad, or CFE), supplies for which exceeded 5000 t and were subcontracted to Comemsa. Before supplying the material, it was necessary to design and test four types of pylons able to resist hurricane-force winds of up to 200 km/h. The task of designing these towers posed a genuine challenge for the engineering division, particularly the end-of-line tower, which incorporated a three-leg design, the first time this configuration has been used for power transmission lines. Its successful response under testing station conditions was also unprecedented.



## **Latin America**

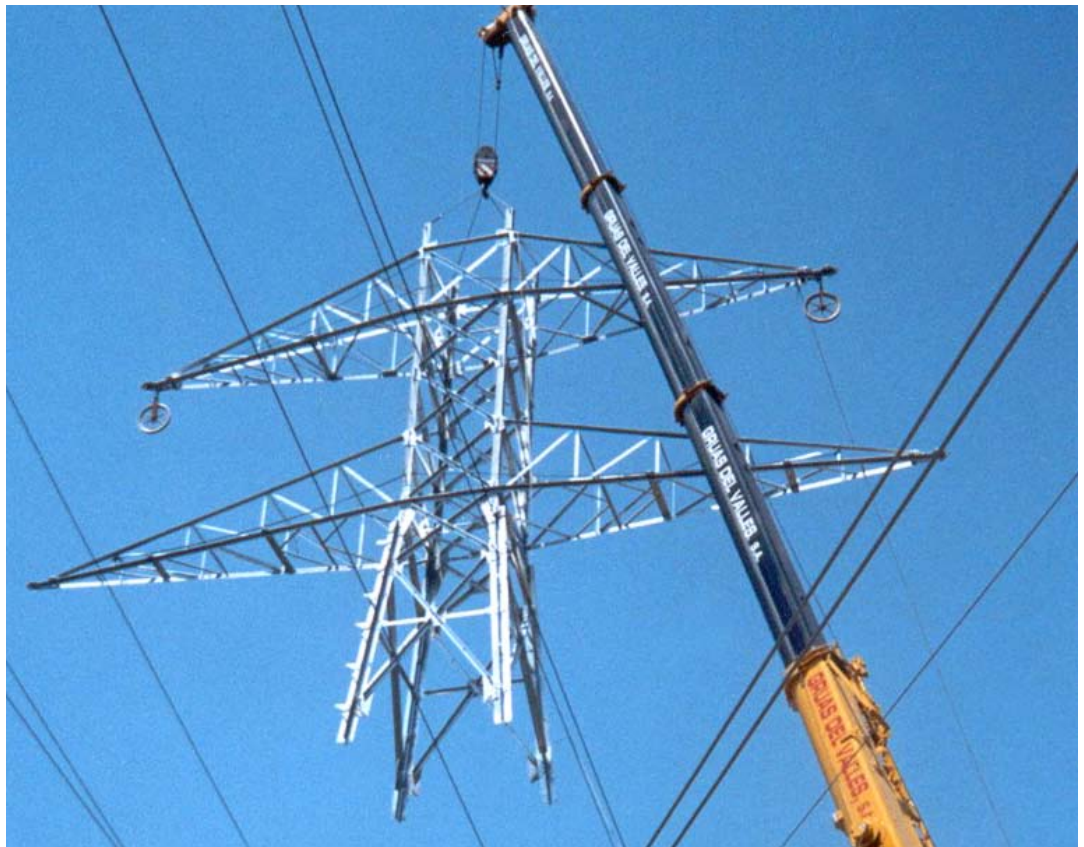
The chosen strategy of the Latin America Business Unit is to make its presence felt in different countries through local companies, covering Argentina, Brazil, Chile, Mexico, Peru, and Uruguay. It operates as an independent group within Abeinsa, as it operates



within a specific market where we have enjoyed a solid presence for over 40 years and where the different group companies conduct all of Abeinsa's lines of business, including Energy, Installations, Telecommunications, Marketing and Ancillary Manufacturing, Civil Engineering and Environmental Services.

After several years without any work on the Argentine electricity transmission system (from 2006 onward), 2009 finally saw the start of various projects under the 500 kV Electrical Transmission Federal Plan. A major player in this plan is Abeinsa's local company in Argentina, Teyma Abengoa.

In 2009, Abengoa México secured major projects to guarantee sustained future growth. Its strategy focuses on increased participation in projects from PEMEX, private customers and other activities, thereby helping to cut energy consumption while championing sustainable development.



## **Abengoa Brasil**

The successful development of the core aspects of Abengoa Brasil's Strategic Plan, coupled with its alliances, insourcing of knowledge and business diversification have all led to increased business, enhanced control over processes and major improvements to both efficiency and effectiveness.

### **Energy Transmission Grid Concessions Division**

In Brazil, the company is currently operating 3,600 km of high voltage lines (230-500 kV) and boasts a further 4,435 km of lines through new concessions currently undergoing engineering and/or construction work.

Highlights among these new projects include:

- Concession of the Porto Velho-Araraquara power transmission line through the new concessionaire company Norte Brasil Transmissora de Energia, in collaboration with the state-owned corporations Eletronorte and Eletrosul. This particular concession includes the construction and operation and maintenance of a D/C transmission line measuring 2,350 km for 30 years. The line will transport some of the energy generated by the hydroelectric power plants on the Madeira River directly to São Paulo, the country's main consumer.
- Two concessions, spanning 1,500 km in total, of 230 kV transmission lines, in collaboration with Eletronorte and CTEEP (Companhia de Transmissão de Energia Elétrica Paulista).

Abengoa Brasil has accomplished its plan to operate and maintain installations through the company Omega, a supplier of operation and maintenance services, including the Operations Center in Rio de Janeiro, and with capacity to operate lines in any part of the country.



#### Lines and Transformer Substation Construction Division

Over 2009, construction work on a section of ATE VI and ATE VII was completed and the relevant sections brought into operation, with the corresponding contracts amounting to 200 MBRL. The ATE IV and V agreements will conclude in the first quarter of 2010.

Work is currently continuing on the two third-party agreements signed in 2008, a “turn-key” agreement to construct a power transmission line for Eletronorte, with the value thereof amounting to 92 MBRL, and the construction of the lines and substations required by Abengoa Bioenergy to evacuate the energy to be produced at its cogeneration facilities.



### Teyma Abengoa

The main contracts performed in 2009 include:

- 500 kV El Bracho substation. Construction of a new lane to equip the output of the 01 field. Transfer of the output to the Tucumán de Pluspetrol plant. Supply and electromechanical assembly of the 500 kV switchyard, with extension of busbars, general panels, protection equipment, remote control components, communications, remote protection devices, etc.
- 500 kV San Juancito substation. Supply and electromechanical assembly of the 500 kV switchyard, consisting of two lanes (one incomplete) for 500 kV line input from the Cobos transformer station, with a 50 MVAR reactor, a field for the 300 MVA 500/132/33 kV power transformer and a lane comprising the antennas mounted between towers and a break switch to link up the busbars of the transformer station.
- 500 kV Comahue–Cuyo (Southern Section) project to interconnect the Agua de Cajón substation, in Neuquén province, with the Gran Mendoza substation, in Mendoza province, with a total length of approximately 707 km. The project will require a 500/220 kV midpoint substation called Los Reyunos (currently Río Diamante), close to the existing 220 kV Los Reyunos substation, which belongs to the company Distrocuyo S. A.. The new substation will be linked up with a roughly 7-km long 220 kV power line and with the extensions made to three other existing substations.



### Abengoa Chile

Of note among the main projects secured and performed in 2009 were the following:

- Engineering, supply and construction of the Lagunillas and Hualpén substations for Transelec in the Eighth Region. This particular project will involve the construction and assembly of a substation in Lagunillas, the extension of a 220 kV yard and construction of a new switch house in Hualpén.
- Construction for Pacific Hydro Chile of the Interconexión substation and modification of the Maitenes and Sauzal substations and the 2x220 kV power transmission line between the Chacayes and the Interconexión substations. The work requires the company to configure the Interconexión substation as a SF6 gas insulated substation (GIS), modify and extend the Maitenes and Sauzal substations and construct a 2x220 kV line between Chacayes and Interconexión.
- Construction of two overhead lines for Minera Esperanza. The first will be 110 kV and 55 km in length, between the Chacaya substation and the Principal Puerto substation in Michilla. The second, which will be 2x220 kV, 82 km in length and span the El Cobre and Esperanza substations, will be used to deliver electricity to the Esperanza Project, located in the commune of Sierra Gorda, 150 km from Antofagasta.

Thanks to its acquisition of Servicios de Ingeniería SDI-IMA, a company with a strong presence in Chile's electric infrastructure engineering sector, Abengoa Chile has bolstered Abeinsa's standing in Latin America, in line with its strategy of strengthening its capacities and long-term growth potential.



### Teyma Uruguay

Teyma continued to enjoy business growth over 2009 and turnover in Uruguay and from international trade jumped sharply. The company successfully completed several major projects and continued to expand into new territories.

#### Teyma Construcción

The main projects completed or in progress in 2009 are described below:

- Sixth pumping line to supply drinking water to the western zone of Montevideo and Canelones. The project includes the engineering, supply and installation of 33 km of 1,200 mm diameter ductile cast piping, 14 km of 800-1,000 mm ductile cast piping and 40 km of 350-800 mm fiber-reinforced plastic (FRP) piping.
- National Port Authority (Administración Nacional de Puertos, or ANP). Engineering and construction work on the Colonia Port terminal. Civil infrastructure for services to be provided at a terminal that will include all the waterway operators and which will allow for efficient transport mode changes while also catering to the tourism industry.
- 500 kV substations for Administración Nacional de Usinas y Transmisiones Eléctricas (JV). The project, currently in progress, encompasses the supply and "turn-key" installation of two 500 kV substations located in Punta del Tigre and Las Brujas to join or link up the line from Punta del Tigre with the existing 500 kV Uruguayan transmission grid.

- Administración Nacional de Usinas y Transmisiones Eléctricas (JV). Areva - Frequency Conversion Station in Melo. Supply and “turn-key” installation of a 60/50 Hz frequency conversion station, capable of connecting Uruguayan and Brazilian power lines and transmitting up to 500 MW. Teyma has been entrusted with the engineering and construction of all the civil engineering work and associated electromechanical assembly work.



#### Teyma Forestal

The company specializes in the harvesting, extraction and transportation of wood, both as a source of energy for industries and as a raw material for industrial processes. The main contracts over 2009 were as follows:

- Mechanized harvesting to be used for cellulose paste production for Eufores S. A. (ENCE). The four-year agreement to harvest eucalyptus plantations will result in an annual production volume of 39.6 Kgal. of wood chippings, which will be sold to European cellulose plants.
- Supply of forest biomass for industrial energy. In January of 2009, operations were successfully started at a wood chipping power plant located in Soca, which supplies chips on a permanent basis to two industries within the Canelones department.

#### Teyma Medioambiente

A Teyma subsidiary primarily engaged in urban waste management and providing innovative technical solutions. Its main line of business is urban waste collection, the contract with Montevideo City Hall being the most important.

Operating under the name CAP, it provides waste collection and street sweeping, washing and cleaning services in a specific area within Montevideo city center. The contract has a term of seven years, renewable for a further seven years.

#### Teyma Internacional

Specializing in “turn-key” renewable energy projects, Teyma Internacional is currently acting as an executor of Abengoa’s investments in new biofuel and solar power plants. It has incorporated companies in Spain, Brazil and the United States to continue growing in markets with heavy investment in renewable energies.

The main contracts in progress are:

- ISCC Ain Beni Mathar in Morocco. Hybrid electrical power plant utilizing gas and solar thermal energy with a combined capacity of 470 MW. The company is developing the plant in collaboration with other group companies.
- Hassi R'Mel 150 MW hybrid electrical power plant in Algeria. This hybrid plant features similar technology to the Ain Beni Mathar plant described above and is also being developed in collaboration with other group companies.
- Cogeneration plant for Abengoa Bioenergia São Luiz in Brazil. EPC agreement to deliver a cogeneration plant, with an installed capacity of 70 MW and powered by sugarcane bagasse, at the sugarcane and alcohol plant in the city of Pirassununga, in the state of São Paulo.

### Abengoa México

The main projects secured in 2009 and in progress are:

- 204 SLT 1119 South-East Transmission and Transformation Project (Phase 1), involving the construction and installation of five 400 and 230 kV transmission lines measuring 168.9 km, along with two 400 and 230 kV, 875 MVA, 60 MVAR substations and ten feeders.
- 190 SE 1120 North-East Project, involving the construction and installation of 11 jobs: three 115 kV transmission line jobs spanning 8.41 km and eight 115/13.8 kV and 115/34.5 kV, 210 MVA and 12.6 MVAR distribution substation jobs, along with six high voltage feeders, 40 medium voltage feeders and 35.37 km of trunk line.
- The Oil & Gas and gas division of Abengoa México, in collaboration with Abener Energía, has been awarded the first energy generation concession that PEMEX has launched on the market. The project requires the construction and operation of a 300 MW cogeneration plant capable of producing between 550 and 800 t of steam for use in the natural gas production process at the Nuevo PEMEX gas facilities. The timeframe for construction is 36 months and the project includes the operation of the plant for 20 years once it has been constructed.



In keeping with its growth strategy, Abengoa México has broadened its electric power transmission line business to take in the United States. Abengoa T&D, with head offices in Denver, has been operating since August, and is working tirelessly to pinpoint business opportunities and seek out strategic alliances with potential partners.



## Abengoa Perú

Abengoa Perú closed 2009 on an all-time high, with turnover exceeding the \$140 M mark and a portfolio sure to guarantee similar levels of business for 2010.





The main projects completed or in progress include:

- Sedapal:
  - The project to extend and upgrade the Manchay drinking water and sewage system was completed within the framework of the government's Agua para todos (Water for Everyone) program. The project will benefit more than 40,000 underprivileged inhabitants and includes the design, supply, land preparation and construction of the entire water supply and sewage system.
  - Construction of the Malecón Cieneguilla piping channel and improvements to the Caña Hueca and Jatosisa-Sotelo irrigation channels.
  - Extension and improvement work to the drinking water and sewage systems for the zones of Pariachi, La Gloria, San Juan, Horacio Zevallos and Annexed Territories.



- Package 3A of the Piura "Water for Everyone" program: The Piura consortium, comprising Abengoa Perú and Teyma Uruguay, has been awarded a contract to prepare the technical documentation and construct the drinking water and sewage system for Piura-Castilla. The project includes the construction of the Lagunas San Martín wastewater treatment plant, with an average water treatment flow of 200 L/s.
- ATN: Construction of the high voltage 220 kV Carhuamayo-Carhuaquero line and associated substations. The project includes EPC and operation and maintenance for 30 years and comprises 670 km of 220 kV line, two new substations and five extensions to existing substations. It spans the Peruvian mountains at an average elevation of 3,000 m above sea level.

## Bargoa

Bargoa specializes in the development, manufacture and marketing of a wide range of products for telecommunications networks and exchanges.

Despite the fact that investment by telephone operators in 2009 was down on previous years, Bargoa still managed to consolidate its status as a leading company in the Brazilian market, where it markets the products it manufactures.

Its main clients were Oi-Brasil Telecom and Telesp in Brazil, whereas in the field of exports, business flowed in predominantly from Chilean, Argentine and Spanish telecommunications companies and traditional clients from North America, Korea and Japan.

## Abeinsa New Horizons

Hynergreen experienced growth over 2009 in terms of size and business volume by upping R&D investment in new hydrogen technologies and fuel cells, a further illustration of Abengoa's spirit of innovation in the key areas of sustainability and clean energies.

Zeroemissions spent 2009 consolidating its business and international offices. As a result, its human capital and geographic presence jumped to nearly 60 employees, with subsidiaries in Rio de Janeiro, Beijing, Bombay, Moscow, Brussels and New York.

### Hynergreen

Hynergreen, the Abeinsa company specializing in hydrogen and fuel cells, has continued to flourish over the last five years, having reported a marked increase in project execution over 2009.

Highlight projects for the year include:

- Continuation of the engineering work for Navantia within the framework of the Air-Independent Propulsion System (AIP) for the new S-80 submarines, which the Navantia shipyard is constructing for the Spanish Navy.
- Completion of the service station for Project Hércules, an unprecedented milestone in that it represents southern Spain's first hydrogen fueling station. It produces hydrogen through clean and renewable electrolyzer technology, which employs water and the electrical power generated by photovoltaic panels and Stirling dishes.



In the field of internal R&D, Hynergreen has continued to implement its strategic plan by carrying out projects and activities in two core areas:

- The production of hydrogen from renewable sources (solar, wind, biomass and biofuel), including storage and transportation.
- Electric energy production through fuel cells, taking in the entire process and including such aspects as power adaptation, control, security and the user interface.

On the international stage, Hynergreen has acquired part of the Dutch company HyGear, which specializes in the development of hydrogen production systems through natural gas reforming, the ultimate aim being to join forces and develop reactors and compact systems for hydrogen technologies.

### Zeroemissions Technologies

Zeroemissions was created in 2007 to centralize and head Abengoa's carbon activity with one specific mission in mind: to offer solutions to climate change by promoting, developing and trading carbon credits and through the company's corporate carbon strategy, voluntary emissions compensation and innovation in GHG reduction technologies.



In the field of Carbon Credit Generation through projects to reduce emissions, CDM (Clean Development Mechanisms) and JI (Joint Implementation) have significantly increased in volume and currently boast 25 projects, with a credit potential of close to 10 Mt of CO<sub>2</sub>. This credit portfolio is well diversified both geographically (China, India, Brazil, Chile and Colombia) and technologically (hydraulic plants, wind farms, energy efficiency, heat recovery, avoided methane from livestock waste, substitution of fuel for biomass, manufacture of bricks, etc.).

Of the various projects secured over 2009, highlights include the contracts with Pushpit Steels in India and MafriSur in Chile.

During the year, the Certification and Labeling Team continued to hone its consultancy services to help customers implement GHG emissions reporting systems, prepare emissions inventories, calculate emissions associated with products and services and roll out plans to monitor GHG emissions, enabling companies operating within the regulated sector to seek emissions authorization. The team also provides emission rights management and environmental consultancy services.

### **Ocean Energy**

The Inabensa R & D department is evaluating the various options offered by marine currents, waves and tides with a view to finding uses for this new source of renewable energy.

### **Carbon Capture and Valorization**

Abeinsa develops solutions to convert carbon dioxide into a valuable co-product: a biofuel or new raw material.

### **Energy Efficiency**

Energy efficiency consultancy and research. Abeinsa creates technologies to raise the energy efficiency of industrial equipment and modes of transport, and develops efficient energy storage systems.

### **Telecommunications**

Abeinsa develops infrastructure and technology with a special focus on medical and healthcare applications.