

# ABENGOA



## Activity Report 2008

Innovative Solutions  
for Sustainability



## Activity Report 2008

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## Main Figures

During the period 1998-2008 Abengoa's revenue has grown at a compound annual rate of 18%, the gross operating cash flow has increased by 25% and earnings per share have increased by 22%.

Economic - Financial Data (M€)	2008	% Variation (07-08)	2007 <sup>(1)</sup>	1998 <sup>(1)</sup>	% CAGR (98-08) <sup>(2)</sup>
<b>Profit and Loss Account</b>					
Sales	3,114.5	17.3	2,655.8	601	17.9
Gross Cash Flows <sup>(3)</sup>	545.3	39.3	391.5	59.3	24.8
EBITDA <sup>(4)</sup>	459.3	42.2	322.9	59.3	22.7
Net Profit	140.4	16.6	120.4	19.9	21.6
<b>Balance Sheet</b>					
Total Assets	9,794.6	20.8	8,110.2	984.6	25.8
Equity	627.5	(21.3)	797.5	184.5	13.0
Net Debt (Cash) ex Project Finance	486.4	-	285.2	(52.9)	-
<b>Significant Variables</b>					
Margin (% EBITDA/Sales)	14.7	-	12.2	9.9	-
Return on Equity (ROE) <sup>(5)</sup>	26.4	-	17.0	10.8	-
<b>Data per Share</b>					
Earning per Share (€)	1.55	16.6	1.33	0.22	21.6
Dividend per Share (€)	0.18	5.9	0.17	0.07	9.9

<sup>(1)</sup> Pro forma information for making consistent comparisons with 2008, in which Telvent appears as a discontinued activity.

<sup>(2)</sup> CAGR: Compound Annual Growth Rate.

<sup>(3)</sup> Earnings before interest, tax, depreciation and amortization, adjusted by the works flows done for own fixed assets.

<sup>(4)</sup> Earnings before interest, tax, depreciation and amortization.

<sup>(5)</sup> Net Earnings / Shareholders' funds.

With the goal of improving the comparability and understanding of the financial information shown in this report, the figures corresponding to the balance sheets and the income statements of the years 2008 and 2007 are presented excluding the Information Technologies Business Unit, as stated in note 14 (Non current Assets and liabilities held for sales) of the Consolidated Financial Statements of Abengoa.

## Business Units, Geographies and Types of Activities

Evolution 1998-2008		4 business units		Engineering Company	
Business Units	2008		1998 <sup>(1)</sup>		
	Sales %	Gross Cash Flows <sup>(2)</sup> %	Sales %	Gross Cash Flows <sup>(2)</sup> %	
Solar	2.1	7.4	-	-	
Bioenergy	26.7	20.5	-	-	
Environmental Services	28.0	28.9	9.3	5.1	
Industrial Engineering and Construction	43.2	43.2	90.7	94.9	
<b>Consolidated Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	
Geography	%	%	%	%	
United States	11.2	6.7	-	-	
Latin America	25.3	33.9	44.6	27.6	
Europe (excluding Spain)	16.1	18.8	3.1	4.2	
Africa	10.0	5.3	0.8	1.7	
Asia	2.8	0.7	2.7	4.9	
Spain	34.6	34.6	48.8	61.6	
<b>Consolidated Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	
Types of Activities	%	%	%	%	
Concession and Recurrent Businesses	15.5	48.5	4.7	1.8	
Businesses Involving Risk in Terms of Price of Raw Materials	39.1	27.4	-	-	
Rest of Engineering Businesses	45.4	24.1	95.3	98.2	
<b>Consolidated Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	

<sup>(1)</sup> Pro forma information for making consistent comparisons with 2008, in which Telvent appears as a discontinued activity.

<sup>(2)</sup> Gross Cash Flows: Earnings before interest, tax, depreciation and amortization adjusted by the works flows done for own fixed assets.

## **Our Commitment**

## Our Commitment

At Abengoa, we believe that the world needs solutions that will allow our development to be more sustainable. Scientists tell us that **climate change** is a reality, and at Abengoa we believe the time has come to pursue solutions and put them into practice.

More than ten years ago, Abengoa decided to focus its growth on the creation of new technologies that contribute to **sustainability** by:

- Generating **energy** from renewable resources.
- Recycling Industrial **waste** and **water** production and management.
- Creating **infrastructures** that prevent new investments in assets that generate emissions.
- Creating **information systems** that aid in ensuring more efficient management of existing infrastructures.
- Establishing **new horizons** for development and innovation.

To this end, we invest in Research, Development and Innovation, R&D&i, **globally** expand the technologies with the greatest potential, and attract and develop the necessary **talent**.

Moreover, through the **Focus-Abengoa Foundation**, we dedicate human and economic resources to promoting social action policies that contribute to social and human progress.

By doing so, we create **long-term value** for our shareholders, contribute to the development of society in the areas in which we conduct our activities, and help to make the world a better and more sustainable place for future generations.



## Report from the Chairman

The year 2008 was yet another one of profitable growth for Abengoa. We ended the year with pro forma sales (including Telvent) totaling 3,769 M€ up 17% from 2007; a pro forma gross operating cash flow of 627 M€ (+39%), pro forma EBITDA of 541 M€ (+41%), and a net profit of 140 M€ (+17%).

At the end of 2008 we put Abengoa's majority stake in Telvent up for sale. Telvent is the subsidiary through which we consolidate most of our information technology business. This decision reflects the strategy of accentuating our activity in sustainability and the opportunity proffered in terms of enhanced resource availability. This potential divestiture would enable us to drive forward our plans for businesses with a high potential, such as solar energy and water, areas in which we will create more value for our shareholders.

Recording Telvent as an "interrupted" activity, as required by the accounting criteria we apply, our activities brought in a total of 3,115 M€ (+17% from 2007) in revenue, 545 M€ (+39%) in gross operating cash flow, EBITDA totaling 459 M€ (+42%), and a net profit of 140 M€ (+17%).

Thanks to this progress, Abengoa has stepped up its activity in high-growth businesses based on offering innovative solutions for sustainability. We are concentrated on three major global markets with a high potential for growth: solar power, bioenergy and environmental services (including water and industrial waste recycling), areas in which sales have increased by 26%, making up 57% of the total figures; with operating cash flow totaling 310 M€, up by 45%. We maintain our industrial engineering and construction activity involving both our own and third-party projects.

Abengoa continues to diversify geographically, with higher growth in America and Africa and lower growth in Spain, representing 35% of total consolidated revenue. Latin America totals 25%; Europe (excluding Spain), 16%; the United States, 11%; Africa, 10%; and Asia, 3%.

As far as risk profile diversification is concerned, Abengoa currently has a highly diversified portfolio that combines businesses and geographical areas involving a low degree of co-related risk and enables us to maintain a profile of growth and cash flow generation with a low level of volatility:

- Recurrent, low-risk businesses, such as solar energy, water and desalination plants and electrical assets (primarily transmission lines and cogeneration plants) which we hold either through ownership or concession account for 49% of gross cash flow.
- Businesses involving risk in terms of the price of raw materials, where we include our bioenergy business and some metal recycling businesses, make up 27%.
- Remainder of our engineering businesses, which are subject to the standard risks involved in the contract and execution of projects using technologies in which we have a great deal of expertise make up 24% of cash flow.

Financing new projects has become more difficult and costly, and various geographical locations where we operate have shown a slowdown in growth. The impact on our businesses has been limited until now, but if the financial crisis, which has already turned into an economic crisis, proves to be deep and broad enough, it will have an effect on our engineering and construction businesses, as well as some waste recycling businesses, and it will slow down the rate of launching new projects. The impact in 2009 will be limited, however, as a result of our diversification of businesses and geographies.

At Abengoa we have made the decision to operate under the assumption that the economic situation is not going to show improvement in Europe and North America in 2009, and will be characterized by significant decreases

in gross domestic product and investment, as well as lower growth in Latin America and Asia. We are facing this context from a very favorable position and through a solid strategy that does not require substantial modifications to the way in which we manage our businesses.

We believe that we must uphold our strategy because the chief sustainability-related markets in which we operate (solar power, bioenergy, desalination, recycling) will continue to grow in most geographical locations, thereby benefiting the industrial engineering and construction business. The world has a need to ensure that development is sustainable and to combat climate change. A more complicated financial and economic scenario does not alter that need in any way.

In what we refer to as our Horizon 1 businesses (cash flow and short-term profitability generators), where we include industrial engineering and construction and industrial waste recycling, we are proceeding under the assumption that the economic situation will affect us in 2009. Thus, in 2008, we prepared ourselves for a more arduous context by increasing our order portfolio and lowering costs. Continued cost reduction, higher profitability, even at the expense of growth, and aggressive management of working capital with the aim of maximizing the generation of cash flow will be our priorities in 2009.

- In industrial engineering and construction we are taking on the challenges of this context with our largest order portfolio ever (2,640 M€) accompanied by a plan for lowering costs under way.
- In the area of electrical power transmission, in 2008 we put the ATE III line into operation and contracted two new lines in Peru and Brazil, in this case through a joint venture with Eletronorte, with a combined investment totaling more than one thousand million dollars.
- As far as industrial waste recycling is concerned, we completed the integration of acquired zinc businesses and of the aluminum business.

In horizon 2 businesses (profitable growth in the coming years), including solar power, bioenergy and water, our goal is to invest and grow in a way that is profitable. We are one of the world's leaders in size, capability and technology in these three markets and this will enable us to keep growing, even within the context of the anticipated economic environment. In 2009 our priorities for these high-growth businesses are to move forward in our projects under construction and launch new ones in the solar energy and desalination segments:

**Solar Energy.** In 2009 we will move forward with our five company-owned thermosolar plants which are under construction in Spain and Algeria, and we intend to launch new projects, making the most of existing regulatory frameworks, as well as those we expect to be set into motion shortly in different geographical locations.

**Bioenergy.** We will continue construction on three plants in the United States and Holland, as well as two co-generation plants in Brazil that will utilize sugar cane-based biomass. The directive that was approved in the European Union will accelerate the development of this market and our European business in the medium term.

**Water.** Our priorities are to complete the four plants currently under construction in Algeria and India, to begin building a plant in China, and to finalize new project contracts.

In Horizon 3 businesses (generators of future growth), including the efficient and "storable" solar energy of the future, bioethanol from biomass, hydrogen, emissions management, energy efficiency and new renewable energies, we will continue to stand by R&D&i, focusing primarily on solar power and bioenergy. We are not going to reduce investment in these businesses. We firmly believe that in our markets the creation of long-term value will depend on success in R&D&i, and we will therefore take advantage of this juncture to prepare our next generation of new technologies, utilizing existing public funds to share risk in the geographical areas in which we conduct our business.

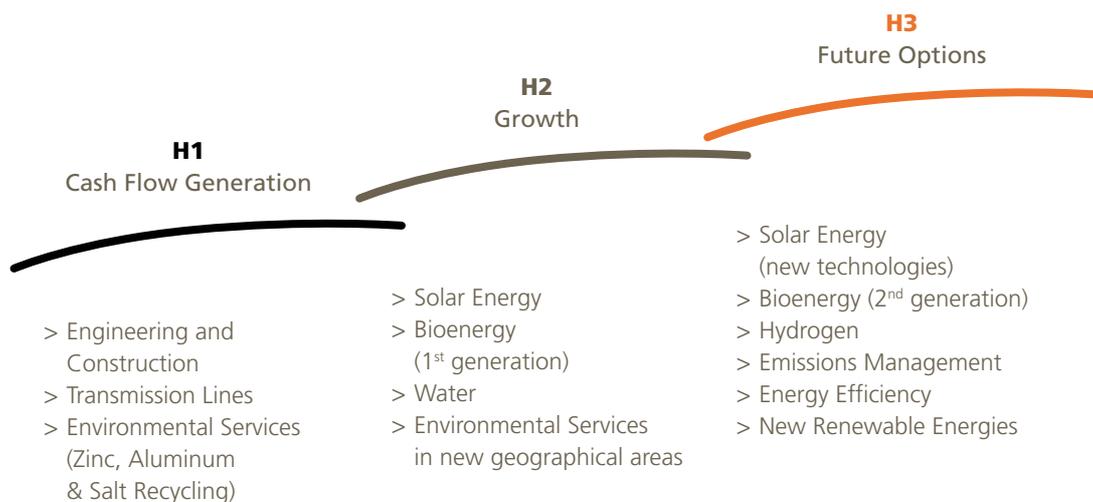
Finally, over the course of 2008 we continued to make progress in key areas such as Human Resources and quality. More than 2,500 new employees joined our companies; we conducted nearly 1 M hours of training, and we carried out an international internship grant program involving over five hundred participants in collaboration with universities and other academic institutions in the geographical areas where we operate. We also continued to invest in Corporate Social Responsibility, promoting the social and cultural development of the communities where we carry out our activities, with an emphasis on the disabled and the underprivileged, investing a total of more than 10 M€ .

We manage the emission of gases that cause the greenhouse effect, anticipating more stringent regulations to go into effect in the markets and geographical areas in which we operate. These regulations will promote technologies and business models that are based on lower levels of contamination. To prepare ourselves we have begun to implement an ambitious plan that seeks to quantify and audit, on an annual basis, both the emissions we produce as well as those of our suppliers, to subsequently take action in order to cut down on these emissions. At the end of 2008 more than 4,900 suppliers had signed the agreement to collaborate in this initiative.

Following our commitment to transparency, and with the aim of continuing to guarantee the reliability of the financial information issued by the company, we have kept strengthening our internal control structure and tailoring it to the stipulations of the Sarbanes-Oxley Act. Once again this year, we have voluntarily submitted the entire group's internal control system to an independent evaluation process carried out by external auditors in accordance with PCAOB audit standards.

We are ready, therefore, for a difficult environment. We are taking the necessary steps to ensure that we face 2009 head on from the position of having ample cash flow; we have an order portfolio at an all-time high, and a plan for cutting costs in horizon 1 businesses (the maturest) in motion. We have projects to be financed that would allow us to continue growing and investing in our horizon 2 and 3 businesses. Thus, in light of these prospects, we maintain our targets for profitable growth and the creation of value, at a similar rate to that achieved over the past ten years.

**A balanced set of activities**



## **Our Management Model**

## Our Management Model

Abengoa's growth is based on five strategic pillars:

1. Creation of **new businesses** that help to fight climate change and contribute to sustainability.
2. Maintenance of a highly competitive **human team**.
3. Constant value creation strategy via generation of new options, defining **current and future businesses** pursuant to a structured procedure.
4. **Geographic diversification** in markets with the greatest potential.
5. Major investment effort in **research, development and innovation** activities.

These pillars are supported by a management model characterized by three elements:

1. Corporate social responsibility.
2. Transparency and rigor in management.
3. Fostering of business spirit.



# Consolidated Analytical Report

The objective of the analytical information, outlined as follows, is to provide interested parties with further details of the different Business Divisions that make up Abengoa. In certain cases, in order to facilitate the detailed internal analysis, the information follows "aggregate" criteria instead of consolidation criteria.

With the goal of improving the comparability and understanding of the financial information shown in this report, the figures corresponding to the balance sheets and the income statement of the years 2008 and 2007 are presented excluding the Information Technologies business unit, as stated in Note 14 (Non Current Assets and Liabilities held for sale) of the Consolidated Financial Statements of Abengoa.

**Relevant items**

In 2008 financial year, Abengoa reached growths in its main items of the Income Statement. All Abengoa’s Business unit increased their sales and Gross Operating Flow figures over the 2008 financial year.

On 19 November 2008, Abengoa, S.A. published a Significant Event that was notified to the Spanish National Securities Market Commission (CNMV), which stated that as a result of the interest expressed from certain entities, the company had begun a process to potentially sell its stake in Telvent GIT, S.A.

Taking into account the significant relevance of the activities belonging to Abengoa’s information technology business, the sale of this shareholding is considered as a discontinued activity to be reported as such, in accordance with the terms and requirements of IFRS 5.

With the goal of improving the comparability and understanding of the financial information shown in this report, the figures corresponding to the balance sheets and the income statement of the years 2008 and 2007 are presented excluding the Information Technologies business unit, as stated in Note 14 (Non Current Assets and Liabilities held for sale) of the Consolidated Financial Statements of Abengoa. It is important to point out that the eventual sale of Telvent G.I.T., S.A. does not assume the transfer by Abengoa of all its share holdings and activities associated with the Information Technology business unit which are undertaken through other entities, and would retain part ownership of these in its name.

**Sales**

Abengoa’s consolidated Sales to December 2008 were 3,114.5 M€ a 17.3% increase on the previous year (2,655.8 M€).

Consolidated Sales (M€)	2008	% Var. (07-08)	2007
Solar	65.0	266.6	17.7
Bioenergy	830.1	35.3	613.7
Environmental Services	873.4	13.5	769.7
Information Technologies	696.9	16.7	597.2
Industrial Engineering and Construction	1,993.5	28.9	1,546.6
Eliminations in Industrial E&C works (**)	(689.7)	-	(330.5)
<b>Total Pro-forma Consolidated Sales</b>	<b>3,769.2</b>	<b>17.3</b>	<b>3,214.5</b>
Interrupted activities	(654.7)	17.2	(558.7)
<b>Total Consolidated Sales</b>	<b>3,114.5</b>	<b>17.3</b>	<b>2,655.8</b>

(\*) Include corporate activity and consolidation adjustments  
 (\*\*) Eliminations in Industrial Engineering and Construction for the internal works of not concessional projects

All Abengoa's Business unit increased their sales over the 2008 financial year.

### Gross Cash Flows

Gross Operating Flows (*) (M€)	2008	%Var. (07-08)	2007
Solar	40.6	326.2	9.5
Bioenergy	111.6	39.8	79.8
Environmental Services	157.8	27.4	123.8
Information Technologies	81.0	44.8	55.9
Industrial Engineering and Construction	236.3	28.9	183.3
<b>Total pro-forma Gross Operating Flows</b>	<b>627.2</b>	<b>38.7</b>	<b>452.4</b>
Interrupted activities	(81.9)	34.7	(60.8)
<b>Total Gross Operating Flows</b>	<b>545.3</b>	<b>39.3</b>	<b>391.5</b>

(\*) Earnings before interest, tax, depreciation and amortization, adjusted by the works flows done for own fixed assets.

(\*\*) Include corporate activity and consolidation adjustments

The Gross Cash Flows from Operating Activities figure is 545.3 M€, which is a 39.3% percent increase on the previous year's figure.

Gross Operating Cash Flows, excluding companies without recourse, totalled 297.4 M€, representing an increase of 48.4% compared to 2007. Including discontinued activities the amount would be 370.4 M€

### EBITDA

EBITDA (M€)	2008	%Var. (07-08)	2007
Solar	9.2	-8.6	10.1
Bioenergy	90.7	67.0	54.3
Environmental Services	157.8	27.4	123.8
Information Technologies	81.0	44.8	55.9
Industrial Engineering and Construction (*)	236.3	28.9	183.3
Eliminations in Industrial E&C works (**)	(33.8)	-	(43.7)
<b>Total pro forma EBITDA</b>	<b>541.2</b>	<b>41.0</b>	<b>383.7</b>
Interrupted activities	(81.9)	34.7	(60.8)
<b>Total EBITDA</b>	<b>459.3</b>	<b>42.2</b>	<b>322.9</b>

(\*) Include corporate activity and consolidation adjustments

(\*\*) Eliminations in Industrial Engineering and Construction for the internal works of not concessional projects

EBITDA for 2008 increased by 42.2% to 459.3 M€ compared to 322.9 M€ in 2007.

The contribution of the different business units to the formation of the main items of Abengoa's Income Statement is as follows:

	Solar	Bioenergy	Environ. Services	Information Technologies	Industrial E & C	Adjustments (*)	Total Pro Forma	Interrupted Activities	Total
Sales (M€)	65.0	830.1	873.4	696.9	1,993.5	(689.7)	3,769.2	(654.7)	3,114.5
Var. % o / 2007	266.5%	35.3%	13.5%	16.7%	28.9%		17.3%	17.2%	17.3%
Gross Operating Flows (M€)	40.6	111.6	157.8	81.0	236.3	-	627.2	(81.9)	545.3
Var. % o / 2007	326.2%	39.8%	27.4%	44.8%	28.9%		38.7%	34.7%	39.3%
% Gross Operating Flows o / Sales	62.5%	13.4%	18.1%	11.6%	11.9%		16.6%	12.5%	17.5%
EBITDA (M€)	9.2	90.7	157.8	81.0	236.3	(33.8)	541.2	(81.9)	459.3
Var. % o / 2007	-8.6%	67.0%	27.4%	44.8%	28.9%		41.1%	1.0%	42.3%
% EBITDA o / Sales	14.2%	10.9%	18.1%	11.6%	11.9%		14.4%	12.5%	14.7%

(\*) Eliminations in Industrial Engineering and Construction for the internal works of not concessional projects

### Net Income

The earnings after tax attributable to the parent company reached 140.4 M€, which is a 16.6% percent increase on the previous year's figure of 120.4 M€.

Earnings per share for 2008 were 1.55 €/share distributed in the following way:

- Earnings per share from continuous operations: 1.26 €/share
- Earnings per share from discontinued operations: 0.29 €/share

### Analysis of the Consolidated Income Statement

A summary of the Consolidated Income Statement of Abengoa at the closing of 2008 and 2007, with the main variations per item, is given below:

Summary of Income Statement (M€)	2008	%Var. (07-08)	2007
Net Turnover	3,114.5	17.3	2,655.8
Operating expenses	(3,182.1)	42.6	(2,232.0)
Other operating Income and Expenses	363.7	n.a.	(190.4)
<b>Operating Profit</b>	<b>296.1</b>	<b>26.9</b>	<b>233.4</b>
Financial Profit	(293.9)	130.2	(127.7)
Participation in Profits of Associated Companies	9.4	121.2	4.2
<b>Consolidated Profit Before Tax</b>	<b>11.7</b>	<b>-89.4</b>	<b>109.9</b>
Corporation Tax	115.2	-1,244.5	(10.1)
<b>Profit for the year from continuous operations</b>	<b>126.9</b>	<b>27.0</b>	<b>99.9</b>
Profit for the year from discontinued operations	38.9	8.3	36.0
Profit attributable to minority interest	(25.4)	64.6	(15.4)
<b>Profit attributable to Parent Company</b>	<b>140.4</b>	<b>16.6</b>	<b>120.4</b>
Earnings per share (€)	1.55	16.6	1.33

The following comments are made concerning the main variations in the income statement.

- 17.3% increase in net turnover, reaching a sum of 3,114.5 M€. All of Abengoa's business areas increased their sales during the year, although the start of operations of the ATE III transmission line concession in Brazil, the ethanol plants in France and Nebraska and the construction of solar projects for third parties were all especially significant.
- The increase in other revenues and operating expenses was mainly due to the greater volume of work carried out on fixed assets as a result of the construction of the internal projects for ethanol plants (mainly Indiana, Illinois, Rotterdam and France) and solar plants (PS 20, Solnova 1, Solnova 3 and Solnova 4).
- At the end of 2008 provisions of 58 M€ were recorded against operating income to provide sufficient coverage for specific risks associated with the evolution of business outside of Spain in the industrial construction and engineering activity, primarily in Brazil. Some 68 M€ was recorded as a deduction for export activities against Other Operating Revenues, in accordance with IAS 12 (for more details see note 20.2 in the report).
- Operating income totalled 296.1 M€, representing a margin over sales of 9.5% and an increase compared to the 233.4 M€ (8.8% over sales) of the previous year. It is important to note that the operating results include the investments made by Abengoa in R&D & i recorded, excluding interrupted activities, as 44.5 M€ in the income statement, as against 21.0 M€ in 2007 (112.2% increase).
- Financial income went from -127.7 M€ in 2007 to -293.9 M€ in 2008 primarily due to the increase in the benchmark interest rates during the year and the increase in financial expenses from projects financed with non-recourse financing arrangements. It is important to highlight that the depreciation in the Brazilian Real during the year against the US Dollar has led to higher book financial expenses (which is not a cash outgoing), as a result of the conversion of the Dollar denominated debts into local currency in the transmission lines business, which increased financial expenses by 90 M€. This devaluation has been partly offset by hedging through the sale of Brazilian Real options. In addition to all of the above, provisions of 65 M€ were recorded against financial income for the negative valuation of financial instruments related to interest rate and exchange rate derivatives that do not meet all the requirements of IAS 39 in order to be classified as hedging instruments.

Financial Results detail (M€)	2008	2007
Brl Exchange options sale	56.3	
Brl Devaluation	(90.0)	18.2
Derivative Instruments negative valuation	(64.9)	(3.1)
Other Financial Results	(195.3)	(142.8)
<b>Net Financial Loss</b>	<b>(293.9)</b>	<b>(127.7)</b>

- The consolidated result before tax (11.7 M€) is understandably affected by the adjustments mentioned in the previous paragraphs and other items which are detailed in the following table:

Profit before income tax (M€)	2008	Var. (07-08)	2007	Note	Cash or Non-cash effect
Profit before income tax (M€)	11.7	-89.4%	109.9		
Other income (DAEX)	68.4		-	20.2	Non-cash
Non-cash provision for risks	(58.1)		(48.7)	18.1	Non-cash
Stock compensation plans	(16.6)		(9.7)	2.20.2	Non-cash
R&D effort	(44.5)		(21.0)	4.2	Cash
Brl / \$ Fx option profit	56.3		-	33	Cash
Non-cash Fx loss (\$ debt in Brazil)	(90.0)		18.2	33	Non-cash
Non-cash charge for derivatives	(64.9)		(3.1)	11	Non-cash
Profit from discontinued activities	46.5		40.2	14	Non-cash
Contribution from new projects	(45.3)		(13.6)		Cash/Non-cash.
Total homogeneous adjustments	(148.2)		(37.7)		
<b>Homogeneous profit before tax</b>	<b>159.9</b>	<b>8.3%</b>	<b>147.6</b>		

- An important aspect in relation to corporate income tax is the application of the Export Activity Deduction (Deducción por Actividad Exportadora; DAEX) in 2008 as a result of investments abroad by Abengoa; the investment and dedication to R&D&i activities (Abengoa is the 7<sup>th</sup> ranked Spanish company for R&D investment according to a report by the European Commission); the contribution to Abengoa's profit of income from other countries; as well as prevailing tax legislation.
- Profit attributed to the parent company grew by 16.6% in financial year 2008 to 140.4 M€, which means earnings per share of 1.55€ (16.6 % increase on 2007).

For further information, please see the Consolidated Income Statement and the Notes to the Consolidated Annual Accounts.

### Analysis of the Consolidated Balance Sheet

A summary of Abengoa's Consolidated Balance Sheet at the end of the 2008 and 2007 financial year, with the main variations in the Balance Sheet, is shown below:

Summary of Balance Sheet (M€)	2008	%Var. (07-08)	2007
Intangible Assets	1,942.6	-0.5	1,952.2
Tangible Fixed Assets	2,399.1	50.1	1,597.9
Financial Investments non-currents	765.7	102.2	378.8
Current Assets	3,654.8	3.8	3,522.6
Assets of interrupted activities	1,032.3	56.7	658.7
<b>Total Assets</b>	<b>9,794.6</b>	<b>20.8</b>	<b>8,110.2</b>
Equity	627.5	-21.3	797.5
Non-current Liabilities	4,775.0	18.9	4,017.1
Current Liabilities	3,635.3	29.1	2,815.8
Liabilities of Interrupted activities	756.8	57.8	479.7
<b>Total Liabilities</b>	<b>9,794.6</b>	<b>20.8</b>	<b>8,110.2</b>

- Fixed assets increased primarily from the construction of solar and biofuel plants.
- The increase in financial investments is mainly derived from the figure for higher deferred taxes due to the application of the Export Activity Deduction (Deducción por Actividad Exportadora), deductions for the R&D&I carried out by the Group and other tax credits. The contribution of financial derivatives was also significant (99.8 M€ in 2008 vs. 0.7 M€ in 2007).
- Shareholders' equity has fallen by 21.3% to 627.5 M€, mainly due to the impact of exchange rate differences from the depreciation of the Brazilian Real and the negative evolution of exchange rate derivatives.
- On the liabilities side of Abengoa's consolidated balance sheet, it is worth noting the 18.9% increase in Non-current liabilities resulting mainly from the increase in long term non-recourse financing. There was also an increase in provisions for other liabilities and expenses that rose from 124.2 M€ in 2007 to 184.6 M€ in 2008, primarily due to the aforementioned provision of 58 M€ to cover specific risks in the evolution of the businesses outside of Spain.
- At consolidated level, Net Debt amounted to 486.4 M€, compared to a net debt position of 285.2 M€ on 2007.

For further information, refer to the Consolidated Balance Sheet and the Notes to the Consolidated Annual Accounts.

### Analysis of the Consolidated Cash Flow Statement

Net cash flows from operations increased by 62% to 705.1M€ compared to 436.2 M€ the year before. The management of working capital during the year is a key aspect in producing these flows and in 2008 it generated 475.2 M€ in cash (168.0 M€ in 2007).

Consolidated Cash Flow Statement (M€)	2008	%Var, (07-08)	2007
Cash generated by operations	229.9	-14	268.2
Variations in Working Capital	475.2	183	168.0
<b>Net Cash Flow from Operating Activities</b>	<b>705.1</b>	<b>62</b>	<b>436.2</b>
Investments	(1,745.8)	40	(1,247.8)
Divestments	167.8	23	136.2
<b>Net Cash Flow from Investment Activities</b>	<b>(1,577.9)</b>	<b>42</b>	<b>(1,111.6)</b>
Net Cash Flow from Financing activities	547.7	-59	1,329.1
Net increase / reduction in cash and equivalents	(325.2)	-150	653.8
Cash or cash equivalent at the start of the year	1,658.9	65	1,005.1
<b>Cash in Banks at the Close of the Year</b>	<b>1,333.7</b>	<b>-20</b>	<b>1,658.9</b>

In terms of net cash flows from investment activities, the most significant investments were in the construction of ethanol plants in Europe and the U.S.A.; in solar thermal and photovoltaic plants in Spain; and in the construction of desalination plants and high-voltage lines in Brazil.

In terms of net cash flows from financing activities, it is worth noting that Abengoa managed to arrange financing for 902.1M€ under difficult financing conditions, taking the figure for net cash flows from financing activities to 547.7 M€.

**Performance of business unit**

**Analysis of the Solar business unit Income Statement**

During 2008 Abengoa Solar put three new photovoltaic plants into operation with a total of 9.5 MW of capacity in addition to the 11 MW with solar thermal tower technology (PS 10) and the 2.2 MW with photovoltaic technology (Copero and Sevilla PV) that we had in 2007.

Furthermore, under construction Abengoa Solar has 170 MW in 4 solar heating plants (one of 20 MW, with tower technology, and three parabolic trough collectors plants) in the Solúcar platform located in Sanlúcar la Mayor (Sevilla). On the other hand, construction of a 150 MW hybrid gas-solar plant is under way in Algeria. It is worth highlighting that in the current highly complex financial environment Abengoa has managed to arrange long term financing for six solar plants worth more than 750 M€ over the last 12 months.

The Solar business unit reported the following results:

Solar (M€)	2008	%Var. (07-08)	2007
Consolidated Sales	65.0	266.6	17.7
Gross Operating Flows	40.6	326.2	9.5
<b>Gross Flows / Sales Margin (%)</b>	<b>30.3</b>		<b>23.8</b>
Ebitda	9.2	-8.6	10.1
<b>EBITDA / Sales Margin (%)</b>	<b>14.2</b>		<b>57.0</b>

Aggregate sales in this Business unit correspond to:

- Revenues from electricity generation totalled 7.5 M€ from the 22.7 MW that we have operational using solar thermal and photovoltaic technology.
- Solar technology sales, amounting to 71.4 M€. In this section, we may draw particular attention to the income from industrial systems for heat generation, with various applications such as air conditioning, water or industrial processes and components for solar plants.
- The solar energy developments which we are carrying out within the framework of our Strategic Plan and the completion of the works for several photovoltaic plants, amounting to 66.9 M€.

The business unit’s workforce has doubled during the year, reflecting Abengoa’s commitment to solar energy. At 31<sup>st</sup> December we had 292 professionals. In fact, in 2007 the average staff was 104 employees. In 2008 the business unit invested more than 500 M€ in the construction of solar thermal and photovoltaic plants, as well as participating in projects to develop solar technologies. At the end of 2008 Abengoa Solar’s assets exceeded 1,000.2 M€. Revenues from energy sales will grow considerably as the plants under construction come online during 2009 and 2010.

We would also highlight the investment in R&D&i, which came to 28.8 M€, including projects in Europe and the United States in conjunction with leading solar energy institutions and universities.

### Analysis of the Bioenergy business unit Income Statement

Despite the adverse raw materials scenario, Bioenergy improved on the results reported in 2007, with the following figures:

Bioenergy (M€)	2008	%Var. (07-08)	2007
Consolidated Sales	830.1	35.3	613.7
Gross Operating Flows	111.6	39.8	79.8
<b>Gross Flows / Sales Margin (%)</b>	<b>12.9</b>		<b>12.5</b>
EBITDA	90.7	67.0	54.3
<b>EBITDA / Sales Margin (%)</b>	<b>10.9</b>		<b>8.9</b>

Sales by Abengoa Bioenergy increased by 35.2% to 829.5 M€ compared to 613.7 M€ in 2007. Ethanol sales accounted for 79% of this growth thanks to higher prices in the U.S.A. and the higher volume of ethanol sold in the U.S. and Europe. Sales from Brazil should also be added to this figure, which were still not consolidated in 2007.

Gross operating cash flows increased by 33.0% compared to the previous year, rising from 79.8 M€ in 2007 to 106.1 M€. The increase essentially comes from the incorporation of Brazil into the consolidation, stronger ethanol prices in the U.S.A. and grain prices in the E.U., offset by a rise in grain prices in the U.S.A. and a modest decrease in ethanol in Europe.

The inclusion of Brazil has not affected EBITDA margin in business operations which remain at similar levels to the previous year. Once the effect of the higher business volume from trading has been excluded, the expenses associated with our investment in technological innovation and the organic growth in new production capacity.

#### Performance in Europe:

- The volume of ethanol sold increased to 492.3 ML (32.1% more than 2007), primarily due to nearly a whole year of operations from Salamanca and the entry into production of the cereals plant in Lacq (France).
- Ethanol prices fell slightly from 0.606 €/L in 2007 to 0.602 €/L due to the fall in oil prices, especially in the latter part of the year.
- However, these effects were offset by the decrease in the cereal price, which in 2008 had an average price of 172.2 €/t (183.1 €/t in 2007).
- Also of note is the effect of the increases in the cost of natural gas, from 20.4 €/MWh in 2007 to 26.8 €/MWh in 2008.
- Construction on the new plant in the Netherlands with an estimated annual capacity of 480 ML continues. The new San Roque plant, which is designed to produce 200,000 t/year of biodiesel and 19,000 t/year of glycerine is due to come into operation in Q1 2009.

Performance in the United States:

- The volume of ethanol sold reached 153.6 Mgal, 14.3 % more than in 2007. The start-up of production in the Nebraska plant was the main reason for this increase (74.3 Mgal sold 2008 vs 31.9 Mgal sold 2007).
- The ethanol price also rose, and reached 2.3 \$/gal (2.1 \$/gal in 2007).
- The cereal price has increased a 32.3%, to 4.5 \$/bsh in 2008 (3.4 \$/bsh in 2007).
- Also of note is the effect of the decreases in the cost of natural gas, from 8.4 \$/MBTU in 2007 to 7.1 \$/MBTU in 2008.
- Works continuous for the construction of two new plants, one in Illinois and another in Indiana, each with a planned capacity of 88 Mgal.

Performance in Brazil:

- Abengoa Bioenergy Brazil has been included in the consolidation for the first time in 2008, which we gained control of at the end of 2007. The main products sold in Brazil were:
- Ethanol (141.0 ML at 0.730 Br/L for hydrated ethanol and 17.2 ML at 0.850 Br/L for anhydrous ethanol).
- Sugar (215.0 Mt at a price of 454 Br/t for the domestic market and 265.0 Mt at 530 Br/t on the external market).

**Analysis of the Environmental Services business unit Income Statement**

In financial year 2008, Environmental Services reported its best results ever.

Environmental Services (M€)	2008	%Var. (07-08)	2007
Consolidated Sales	873.4	13.5	769.7
Gross Operating Flows	157.8	27.4	123.8
<b>Gross Flows / Sales Margin (%)</b>	<b>18.1</b>		<b>16.1</b>

The integration of the aluminium business has been completed with the incorporation of Aluminio Catalán (Alcasa), creating the third largest aluminium recycling unit in the European aluminium waste recycling market.

The sale of the land where the operational desulphurisation plant is located was also agreed in 2008 for more than 44 M€ as part of the Sefanitro Interior Reform Special Plan of the municipality of Baracaldo (Vizcaya). The sale contract includes the hand over of the land within a time frame that guarantees the transfer of the activity to a new location, allowing the existing plant to continue to operate fully along side the urban development that is going to take place in the area. Thanks to the maintenance of Befesa’s existing plant, it will not have to be shut down with the consequent repercussions for employees. Befesa already has a piece of land in the Port of Bilbao for which it is currently applying for the corresponding environmental authorisation.

The reached an agreement to acquire 51% of the US firm NRS Consulting Engineers through Befesa’s subsidiary Befesa Agua. NRS is one of the leading engineering companies in Texas in the sector for desalinating underground

and brackish water, where it has designed around 30% of the facilities that exist in the state for treating these types of water. This acquisition represents Befesa's entry into the United States, one of the most promising water markets, through a company that is highly specialised in desalination.

Performance by business unit is as follows:

- Aluminium Waste Recycling. Accumulated sales during 2008 totalled 252.4 M€ compared to 218.1 M€ in 2007. This increase was principally driven by the incorporation of Alcasa into the aluminium unit. Some 420,603 tonnes of aluminium containing waste was treated during the period, an increase of 18.2%.
- Steel Waste Recycling and Galvanisation. In 2008, sales amounted to 253.6 M€, compared to 251.8 M€ for the same period of the previous year. Over this period, 645,757 tons of steel powder and powder from the galvanisation industry were treated, a decrease of 5.0%.
- Industrial Waste Management. This division reported sales of 136.9 M€, compared to 124.3 M€ the previous year, representing an increase of 10.1%. During 2008, 1,425,561 tons of hazardous and non-hazardous industrial waste were treated, meaning a 3.4% growth compared to the previous year.
- Water. This division reported a cumulative turnover of 230.8 M€ in 2008, 31.5 % up on the previous year's 175 M€, as a result of the execution of the desalination contracts abroad. At the end of the financial year, the order book stood at 514 M€.

There has been an increase in Gross Operating Flows, compared to 2007, of 34 M€, (+27.4%), due mainly to the positive evolution demonstrated in the aforementioned business areas.

The Operating Cash Flow margin has increased notably to 18.1% as a consequence of the modification to the "mix" of the Group's sales.

### Analysis of the Information Technologies Business Unit Income Statement

During financial year 2008, our turnover grew by 17.4% compared to the figure for the previous year. We closed the year with sales of 701.0 M€.

Information Technologies (M€)	2008	%Var. (07-08)	2007
Consolidated Sales	696.9	16.7	597.2
Gross Operating Flows	81.0	44.8	55.9
<b>Gross Flows / Sales Margin (%)</b>	<b>11.6</b>		<b>9.4</b>

This business unit has managed many achievements in 2008 producing double digit sales growth, improved operating margins and unprecedented figures for new contracts and the order book, giving it excellent prospects going into 2009 in the current economic environment.

The year also witnessed a very important milestone in the history of Information Technologies following the strategic acquisition of DTN, which will expand and strengthen Telvent's presence in the North American market and consolidate its position in the information services sector. DTN strengthens Telvent's leadership in the energy and meteorology markets in the USA as well as contributing agriculture, a key segment to the economy and sustainability of any country. This new addition to the group not only strengthens the quantity and quality of critical information that Telvent will be able to offer its clients, but also expands the alternatives for accessing that

information. Finally, DTN's financial profile, with a business model based on subscriptions with retention levels above 90% allows Telvent to improve the recurrent nature of its sales and cash flow generation.

As in previous years, the Group continues to believe that the world is facing two huge problems, perhaps two of the most important issues to be tackled by our civilisation: sustainability and security. Telvent's technological solutions help to achieve a safer and more sustainable world and the company's clients, who place their trust in Telvent, recognise that. In 2008, approximately 85% of sales came from existing clients, while some 30% were generated by recurrent annual contracts, which demonstrates the excellent relationship with its clients, which are increasingly being offered new solutions and services with greater added value.

The increase in sales in 2008 is primarily the result of significant growth in the transport segment and the contribution of the latest two acquisitions, Matchmind and DTN. During 2008 operating margins were also improved, increasing the profitability of gross operating cash flows from 9.4% to 10.0% as a result of improved margins, improved operating efficiencies being implemented and a better operating profile following the incorporation of DTN.

As previously stated, clients continue to trust Telvent. In 2008 new contracts were worth 795 M€ compared to 685 M€ the previous year, an increase of 16%. The order book at 31 December 2008 (contracted jobs pending execution) totalled 861 M€, an increase of 24% compared to the end of 2007, which provides an excellent basis for tackling the challenges that may arise in 2009.

Following the incorporation of DTN in 2008, a new structure has evolved based on five business activities or segments: Energy, Transportation, Environment, Agriculture and Global Services. Telvent continues to offer high value added products and technological solutions in each of these areas, expanding its presence in key geographical locations and laying the foundations for new business opportunities.

- Energy accounted for around 27% of total business in 2008 with sales of 192 M€, of which some 6 M€, came from DTN activities related to the refined products sector. Important growth has been achieved during the year in the oil and gas sector, especially in North America, Asia and the Middle East. In the electricity sector in 2008, the innovative strategy of "Smart Grid", which had an outstanding reference in the project completed for Vattenfall in Sweden, allowed it to make numerous proposals for large scale "Smart Metering" projects (automatic readings) in North America, Europe and the Middle East, which has given it some promising prospects in this sector in the future.
- Transport was the segment that contributed the most to growth in 2008, representing approximately 39% of our business for the year. Revenues grew by 25% to 276 M€, while the leadership achieved in this segment, supported by spectacular growth, has been wholly organic. The regions with the highest growth were the Middle East and Latin America where important projects were undertaken, such as the automatic management and control of traffic offences in Saudi Arabia as well as the supply, installation and launch of the SmartToll system on three federal highways in Brazil. Spain and North America continue to be the most important and strategic transport regions and are where the majority of the activity occurred in 2008. Our leadership in the development, integration and maintenance of the complete cycle of toll management and collection systems has allowed us to win some highly significant projects such as the maintenance of the E-ZPass electronic toll system in New York and the installation of an electronic toll system on the Newport-Pell bridge in Rhode Island.
- Environment performed strongly during the year recording sales of 48 M€, a jump of around 30% compared to the previous year. Organic growth accounted for 18% while the remainder came from the contribution of DTN's activities related to meteorological information services. This activity means that the Environment

segment has a leading meteorological observation and forecasting solution in the market and strengthens its presence in North America. In 2008 Environment increased its water management activity in Europe and in Africa in particular, where in Q3 2008 it was awarded the contract for the Great Man-Made River (GMMR) project, sponsored by the government of Libya, to supply water to the whole of the Libyan coast in order to guarantee an uninterrupted supply to the population, even in times of drought.

- Agriculture, the new segment contributed by Telvent's acquisition of DTN, is a key part of its strategy to provide solutions that help to develop a more sustainable world. With more than 700,000 subscribers and revenues in excess of 80 M€ for the whole year, the Agriculture segment supplies real time information that helps to optimise the production and distribution of agricultural products and offers services and information that help to increase the transparency of broker transactions in organised agricultural markets. DTN is the leader in this market in the USA and has opportunities to grow internationally. Two months of DTN have been consolidated into 2008 and the Agriculture segment ended the year with sales of more than 15 M€ and an approximate gross margin of 77%.
- Similarly, Global Services has grown significantly during the year, both organically and inorganically. Sales for this segment surged by 51% to 167 M€, driven in part by the contribution of Matchmind, a company that was incorporated into the Group in the last quarter of 2007. This segment meets the technological needs of Telvent's clients in an efficient way, offering information and communication technology services, mainly in Spain, which are capable of covering the whole of the business technology life cycle. The incorporation of Matchmind in 2008 strengthened the process and technology consultancy area for this segment, which provides solutions for the design, management, transformation and evolution of client's business processes and technologies.

### Analysis of the Engineering and Industrial Construction business unit Income Statement

Within this Business unit's positive performance, we would particularly highlight the positive contributions of the constructions of biofuel and solar heating plants by Abener, the new hospital and administrative building concessions in Inabensa, and, finally, the high voltage line concessions in Brazil, with the start-up of the new concession for the Colinas-Sobradinho transmission line (ATE II) being particularly noteworthy.

Engineering and Industrial Construction (M€)	2008	%Var. (07-08)	2007
Consolidated Sales	1,993.5	28.9	1,546.6
Gross Operating Flows	236.3	28.9	183.3
<b>Gross Flows / Sales Margin (%)</b>	<b>11.9</b>		<b>11.9</b>

This growth in business and international development has enabled us to become world leaders in the business sectors in which we are present. In fact, according to a recent report in the Engineering New Records magazine, Abensa is the global leader in international contracts relating to the construction of electrical transmission and distribution infrastructures, and is ranked third in the construction of energy-related infrastructures.

By divisions:

- In Energy, we would highlight the positive performance of Abener Energía, achieved through the "turnkey" construction of internal development plants for Bioenergy (245 ML bioethanol plant in Lacq-France, the 200,000-ton biodiesel production plant in San Roque-Algeciras, three plants with capacity to produce up to 480,000 m<sup>3</sup> of bioethanol based on corn or wheat, in the Netherlands and Abengoa Solar (construction of the second tower-technology solar heating plant with 20 MW power of the Sanlúcar La Mayor Solar Platform, Sevilla, and starting construction of the two 50 MW cylinder parabolic plants

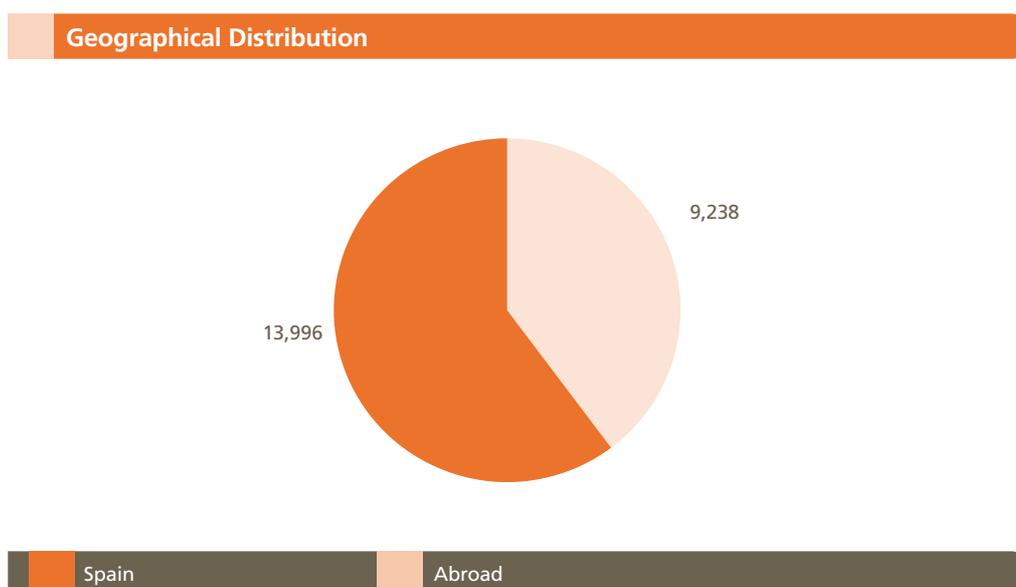
- Our expertise, providing a solid guarantee for Abener in the “turnkey” construction of solar heating technology plants, proved to be instrumental in our being awarded the world’s first combined solar-cycle hybrid plant of 150 MW (in Hassi R’Mel, Algeria), and the 470 MW Ain-Beni-Mathar plant (Morocco), which will use combined cycle technology integrated with a solar field of cylinder parabolic collectors. Investment for the two projects will amount to approximately 800 M€.
- The incorporation of new companies for the international development of Abener’s business (Abencs, EPG, AG and AEPL) has also been important.
- In Facilities, we consolidated the figures reported in 2007, due to the correct execution of our projects during 2008.
- We would particularly highlight the execution of Lot 2 of the Siepac project (Sistema de Interconexión Eléctrica de Países de América Central), which consists of a 230 kV electrical transmission line and the 400 kV Misurata-Surt-Ras Lanouf-Agdabia simple circuit line to 400 kV and 575 km long.
- New contracts achieved during the year include: construction of the catenary and systems associated with the Montilla del Palancar-Valencia and Montilla del Palancar-Albacete high speed railway (AVE) section in Spain; construction of three electricity traction substations and their transformer stations for the Madrid-Zaragoza-Barcelona-French border high speed line; construction of the new headquarters of the Andalusian Energy Agency; extension of the electricity network of western Abu Dhabi, and many more.
- In facilities, it is important to draw attention to the development of the concessions business in Inabensa, by means of taking part in the construction of special buildings, and the subsequent management of the concessionary company. In 2008, within this line of business, we completed the construction of three courts for the Government of the Autonomous Community of Cataluña. Furthermore, Inabensa has been awarded the concession for the new hospitalisation and out patients building of the Costa del Sol Hospital in Marbella (Málaga).
- There was a 25% sales increase in Commercialisation and Auxiliary Manufacturing compared to 2007, which was consistent across all companies in this business line, both for sales agents and Eucomsa. Manufacturing for the solar energy parabolic trough collector plants is particularly important for the latter.
- In Telecommunications, Abeinsa has continued to develop its traditional telecommunications network integration and turnkey projects activity throughout the year.
- In Latin America the activity has grown significantly by 26% compared to 2007. Operations in Brazil included the construction of 1,027 km of high voltage lines. In the transmission line concessions business, Abeinsa recorded annual EBITDA of approximately 115 M€.

<b>Transmissions Lines (M€)</b>	<b>2008</b>	<b>%Var. (07-08)</b>	<b>2007</b>
Consolidated Sales	130.9	22.1	107.2
Gross Operating Flows	114.7	25.9	91.1
<b>Gross Flows / Sales Margin (%)</b>	<b>87.6</b>		<b>85.0</b>

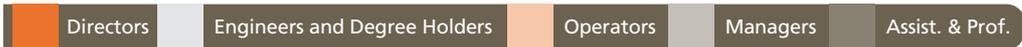
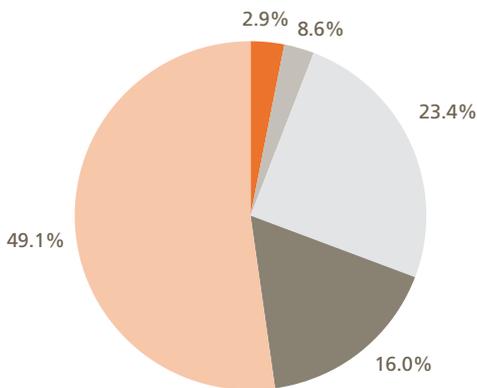
- In Latin America, Abeinsa was awarded new high voltage concessions in Brazil and Peru, consolidating its concession activity. In Brazil it was awarded the contract for a 500 kV electricity transmission line between the Brazilian municipalities of Oriximiná, Itacoatiara and Camiri, 586 km long with direct current, which will carry the energy produced by the power stations of the Río Madeira hydroelectric complex to Sao Paulo, the country's principal consumption area. The line will have a capacity to transport 3,150 MW at 600 kV over a distance of 2,275 km.
- In Peru, Abeinsa was awarded the concession to operate the 200 kV Carhuamayo-Carhuaquero transmission line over a distance of 670 km.
- The progress of Teyma Uruguay has been very important this year with the establishment of Teyma Internacional and Teyma España, with works in Europe and Africa and its consolidation as the leading Uruguayan construction company.
- In the Environment segment, Abeinsa New Horizons has continued to develop its commitment to sustainability, significantly increasing its investment in R&D&i in fuel and hydrogen cells through its subsidiary Hynergreen Technologies, as well as in new energy efficient and renewable energies through the R&D division of Instalaciones Inabensa.
- ZeroEmissions Technologies encompasses the coal "trading" activities and CDM projects associated with the Kyoto protocol. We have signed contracts for carrying out CDM (clean development mechanisms) projects with companies in various countries, such as China and India.

## Evolution of the workforce

The average workforce of Abengoa in 2008 23,234, a 34.7% increase on the previous year figure (17.245)



Profession Groups



Stock Exchange Evolution

According to the figures supplied to the company by Sociedad Rectora de la Bolsa de Valores de Madrid (Governing Body of the Madrid Stock Exchange) 115,637,519 shares were traded in 2008. The average volume of daily trading over the year was 455,266 shares.

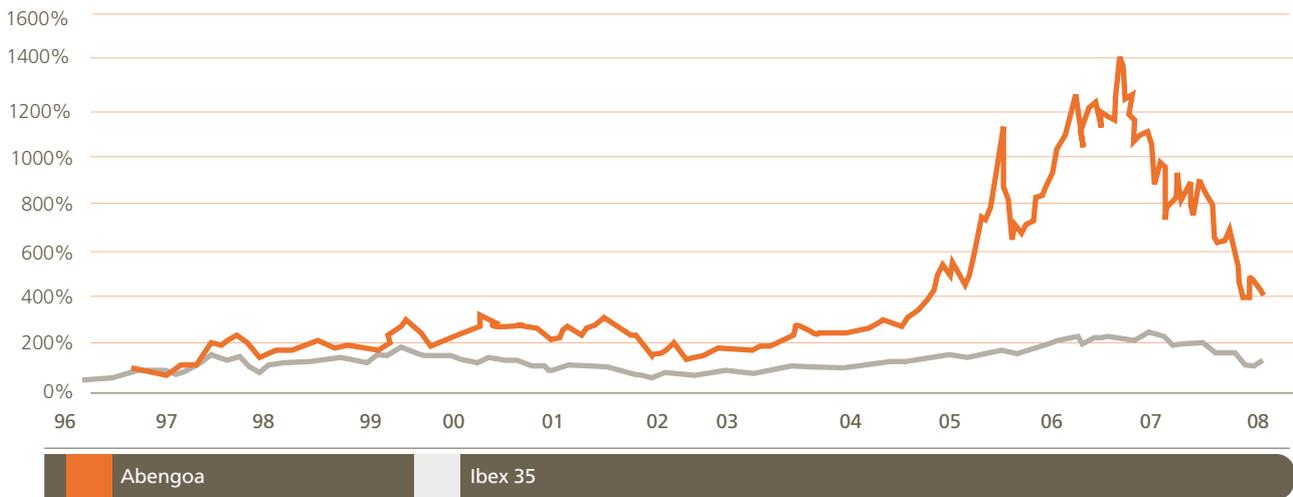
The final listed price of Abengoa's shares in the third quarter of 2008 was 11.80€, which is a 51.2% decrease on the closing price for the previous year (24.18 €) and a 454.4%. Minimum, maximum and average listed share prices in 2008 were 10.08€, 24.45€ and 17.87€. respectively.

Evolution on the Stock Exchange during 2008



As a historical reference, since Abengoa's Initial Public Offering on November 29, 1996, the company's shares have revalorized 454.4% which is more than 5 times the initial price. During this same period, the select IBEX-35 has revalorized 97.0%.

Evolution since Abengoa Initial Public Offering (29.11.1996)



An aerial photograph of a large-scale solar energy project. The central focus is a Concentrating Solar Power (CSP) plant, featuring a tall, white, cylindrical receiver tower. Surrounding the tower are numerous rows of solar collectors, which appear as a grid of dark, rectangular panels. The solar farm is situated in a semi-arid landscape with patches of green grass and brown earth. In the background, a large, circular structure, possibly a water reservoir or a large-scale solar collector, is visible. The overall scene depicts a significant investment in renewable energy infrastructure.

## Solar

**Abengoa Solar develops and applies solar energy technologies in order to combat climate change and ensure sustainability through the use of its own Concentrating Solar Power (CSP) and photovoltaic technologies.**

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



International Presence





## Our business

Abengoa is convinced that solar energy combines the characteristics needed to resolve, to a significant extent, our society's need for clean and efficient energy sources. Each year, the sun casts down on the earth an amount of energy that surpasses the energy needs of our planet many times over, and there are proven commercial technologies available today with the capability of harnessing this energy in an efficient way. Abengoa Solar's mission is to contribute to meeting an increasingly higher percentage of our society's energy needs through solar-based energy.

To this end, Abengoa Solar works with the two chief solar technologies in existence today. First, it employs Concentrating Solar Power (CSP) technology in capturing the direct radiation from the sun to generate steam and drive a conventional turbine or to use this energy directly in industrial processes, usually in major electrical power grid-connected plants. Secondly, Abengoa Solar works with photovoltaic technologies that employ the sun's energy for direct electrical power generation, thanks to the use of materials based on the so-called photovoltaic effect.

Abengoa Solar works with these technologies in four basic lines of activity. The first encompasses promotion, construction and operation of CSP plants, Abengoa Solar currently designs, builds and operates efficient and reliable central receiver systems (tower and heliostats) and storage or non-storage-equipped parabolic trough collectors, as well as customized industrial installations for producing heat and electricity. In each and every case, Abengoa Solar uses its own technology in both plant design and operation. This activity is currently being carried out in diverse geographical locations, including Spain, northern Africa, the Middle East and the United States of America.

The company also executes photovoltaic installations for industrial or commercial building roofs and other urban settings. Abengoa Solar's second line of business involves the promotion, construction and operation of photovoltaic plants and facilities. The company is currently developing installations using various technologies, including one and two-axis trackers and plants utilizing concentration systems.

Third among Abengoa Solar's lines of activity is marketing and manufacturing of the technologies it develops, which takes place together with third parties in some cases. The company currently designs and manufactures key elements such as heliostats, parabolic trough collectors, curved mirrors and high-concentration photovoltaic systems. It has also undertaken a joint venture for manufacturing mirrors.

Finally, Abengoa Solar is carrying out an ambitious R&D&i program to improve current technologies and develop new ones. To achieve this, the company has research centers in Madrid, Seville and Denver, in the United States. Abengoa Solar strongly believes that in a high-growth market like that of solar energy, R&D&i investment is crucial to ensure the enhancement of current technologies. Indeed, Abengoa Solar has an R&D&i team with over 25 years of experience in solar energy, which has proved its credentials by developing the company's own technology for the main business areas. This team also works in collaboration with the world's main research institutes, including Ciemat, DLR, Fraunhofer, ISE and NREL.

Abengoa Solar carries out these four activities in a market experiencing a high growth rate all over the world and promises to sustain that growth by making the most of the global need for clean energy solutions aimed at halting climate change, the need for numerous geographies to increase their energy independence, and the rising costs of fossil energies derived from the recognized costs of the CO<sub>2</sub> emissions they generate, as well as the volatility of oil and gas prices.

Abengoa Solar conducts its business in two main markets:

- Large-scale grid-connected CSP plants. There are currently around 500 MW connected to the power grid around the world (mainly in the United States) and approximately 700 MW under construction (principally in Spain). There are also approximately 8 GW in projects that are at varying stages of development, primarily in Spain, the U.S. and, to a lesser extent, in the Mediterranean area, northern Africa and the Middle East. Exponential growth is therefore anticipated for the coming years. In terms of its position in the market, Abengoa Solar is one of the world's five or six pioneers, and is one of the very few companies to boast its own technology, construction capability and expertise. Therefore, Abengoa Solar's competitive position stands it in excellent stead in a market characterized by genuine growth and significant entry barriers.
- Grid-connected and distributed photovoltaic installations. In 2008, this represents a 3.5 GW market, in which Germany, the U.S., Spain and Japan represent the main markets, and one where growth has been increasing at a rate of 30-40% per year. Until 2008, Abengoa Solar had been competing solely in Spain, a highly competitive market that is free from entry barriers as a result of an excessively liberal regulatory framework. Abengoa Solar did not have any competitive advantages in this market and have developed opportunistic projects, waiting for more suitable regulatory framework.





### 2008 in review

2008 was yet another key year in the evolution of Abengoa Solar's business. The company reinforced its foundations to support the high, sustained and global growth of its business. The following are among Abengoa Solar's 2008 highlights:

- Tremendously successful operation of PS10, the first CSP plant, with 11 MW of power, located at the Solúcar Platform in Sanlúcar la Mayor (Seville).
- Further development of the Solúcar Platform, which, with its 350 MW of installed power, will be the largest solar platform in the world.
  - The world's second commercial power tower technology-based plant, PS20, conducted the first round of performance testing and is on the way to commercial start-up at the beginning of 2009.
  - Progress was made on the construction of the first three parabolic trough plants, each with 50 MW, located at the Solúcar Platform, noteworthy among which is Solnova 1, where its mirror-equipped structures dominate the landscape.
  - Structure assembly began on the Solnova 3 plant, featuring the same characteristics as Solnova 1.
  - Earth-moving work began on Solnova 4, the third 50 MW plant.
- Consolidation of a project portfolio under promotion in Spain that will enable the company to meet its targets for building solar plants in the coming years. Within this portfolio, various projects have already obtained key permits, so construction is therefore expected to commence in the short term, including two 50 MW plants located in Écija (Seville).
- In photovoltaics, the first plant, Seville PV, completed its second year of production, proving the commercial viability of the low-concentration technology utilized. The Copero plant in Seville, with 1 MW of power, continues to operate with excellent performance levels.
- Noteworthy is the production start-up of three new photovoltaic plants in Sanlúcar la Mayor (Seville), Linares (Jaén) and Las Cabezas de San Juan (Seville), adding 9.5 MW of additional power to this activity.
- On the international stage, Abengoa Solar made progress, in collaboration with the industrial engineering and construction business unit, on the construction of the world's first two solar Integrated Solar Combined Cycle (ISCC) plants combining a natural gas combined-cycle with a parabolic trough field. These plants are located in Algeria and Morocco.



- In the United States, Abengoa Solar signed a contract with Arizona Public Service (APS) to sell solar power for a 25-year period. This endeavor requires the construction of a 280 MW parabolic trough technology-based plant, which will be the largest in the world.
- Continued construction of the installations that supply industrial steam to its customers, Abengoa Solar inaugurated its largest project to date for the Frito-Lay Company in California.
- As far as R&D&i is concerned, the Solúcar Platform became one of the world's main solar energy research centers in 2008. The platform currently has various groundbreaking research facilities either in operation or under construction, including a high-temperature power tower, a parabolic trough plant for direct steam generation and a Stirling dishes installation. Its photovoltaic laboratory was also consolidated to enable field assessment and validation of the simulation models for diverse photovoltaic technologies.
- Abengoa Solar brought two parabolic trough collector assembly plants into operation. They are currently supplying the Solnova 1 and 3 plants and are intended to supply the rest of the Solúcar Platform in the future.

**Our activities**

Promotion, construction and operation of CSP plants

The world's CSP promotion market experienced tremendous growth in 2008, indicating a prelude to the phase of implementation of this technology in different geographical areas. This growth is based on three fundamental factors:

- Recognition, by the societies in which Abengoa Solar operates, of the hidden costs of fossil energies due to the emissions they produce.
- The reduction in costs offered by solar energy and increased awareness of available options.
- Approval in various countries, as a result of these two factors, of regulatory frameworks favoring the introduction of CSP technologies and support of specific projects.

The Spanish market has plants in operation and under construction which, over the next two years, will exhaust the current regulatory framework, and therefore broader regulation is expected. However, significant initiatives have been undertaken in other geographies, enabling us to be optimistic about the future of large-scale CSP plants.

Within this context, Abengoa Solar upholds a solid commitment to the development of the CSP market, both in Spain and abroad, and currently has 11 MW in operation, 170 MW under construction in Spain and a few hundred more at the advanced promotional stage.

- PS10, the world's first commercial power tower plant in operation and the first grid-connected plant in Spain with the tariffs established under recent Royal Decree 661/2007. The year 2008 served to demonstrate the commercial viability of power tower technology and to situate Abengoa Solar as one of the world's pioneers in this technology with tremendous potential.
- PS20, the second power tower plant in the world, currently in the start-up phase, implemented a series of improvements over PS10 in certain key aspects.
- Solnova 1, 3 and 4, parabolic trough technology-based plants, each with 50 MW, located at the Solúcar Platform. Construction continued over the course of 2008 using the company's own technology and engineering.
- At a very advanced promotional stage, Abengoa Solar has various 50 MW plants, two of which are located in the municipality of Écija, as well as two 20 MW power tower plants, one at the Solúcar Platform and the other in Almadén (Ciudad Real).
- Beyond Spain, Abengoa Solar has teams that are heading up project promotion in various geographical locations, including the United States, northern Africa, southern Europe, and the Middle East. It is currently building hybrid plants in Algeria and Morocco using Integrated Solar Combined Cycle (ISCC) technology, and in the United States, in addition to the construction of industrial steam plants, a contract was signed with APS to build Solana, the largest solar power plant in the world with 280 MW of power.

### PS10 plant



Its solar field, with 624 heliostats of 120 m<sup>2</sup> each, is particularly eye-catching. It concentrates solar radiation onto the receiver that is located at the top of a 120 m high tower to produce steam and drive a turbine coupled to the electrical generator connected to the power grid.

This plant generates enough clean energy to meet the needs of 5,500 homes and provides a savings in CO<sub>2</sub> emissions of 6,700 t each year. The plant also features a storage system of almost an hour in duration which enables management of cloudy spells without having to shut down and then restart the plant. This is, in fact, the world's first solar power tower plant to feature a built-in storage system.

In June 2007, the plant excelled in the first series of operating tests in accordance with the contracts signed with the financing banks, and in 2008 it continued to show even better results. Since operation began, PS10 has

served as a tool at Abengoa Solar for both gaining knowledge and improving the next power tower technology-based plants.

**PS20 plant**

With its 20 MW of power, PS20 will be able to supply electricity to 10,000 homes; reducing CO<sub>2</sub> emissions into the atmosphere by 12,100 t per year. The plant is made up of 1,255 heliostats and a 160 m high tower.

This plant has profited from Abengoa Solar’s accumulated experience in the construction and operation of these types of plants, and features several enhancements in design that will enable this second generation of power plants to attain higher levels of efficiency than PS10.

**Solnova 1, Solnova 3 and Solnova 4 plants**

In 2008, Abengoa Solar made significant progress in the construction of its first two parabolic trough collector plants at the Solúcar Platform (Seville): Solnova 1 and Solnova 3.



The technology consists of concentrating solar radiation by means of high-precision curved mirrors onto a heat-absorbing pipe, inside which circulates a fluid that reaches high temperatures. This fluid enables the production of steam that is sent on to a turbo-generator, where it expands in order to produce energy.

Each plant is made up of 300,000 m<sup>2</sup> of collectors. A collector has an aperture of 6 m and almost 150 m<sup>2</sup> in surface area. The entire installation will take up an area of 120 ha and will enable the production of enough energy to supply 25,700 homes, reducing yearly CO<sub>2</sub> emissions by 31,400 t. Abengoa Solar also began

construction on Solnova 4, a plant with the same features as the previous two that will be located in the same place.

### Helioenergy 1 and 2 plants

These are CSP solar plants under development in the town of Écija (Seville), employing parabolic trough technology, each with 50 MW. They will enable the supply of electrical power to nearly 25,700 homes and the reduction of CO<sub>2</sub> emissions by 31,400 t per year.

### Almadén Solar plant

A power tower technology-based solar plant under development. It will be located in Almadén (Ciudad Real) and will have a nominal output capacity of 20 MW. Joint promoters are Abengoa Solar, Sepides and the IDAE. The plant will generate over 40 GWh of power, reducing CO<sub>2</sub> emissions into the atmosphere by more than 12,100 t each year.

### United States

In 2008, Abengoa Solar consolidated the Denver (Colorado) team. This team has the capability of delivering solar-based industrial steam solutions for customers currently using steam from fossil fuels. Abengoa Solar thus offers a wide range of options that fully cover industrial and commercial applications, including water heating, steam generation and climatization. Abengoa Solar installs these systems all over the world by means of the standard modifiable system designed by the company. Noteworthy among these projects is the plant for heating frying oil for Frito-Lay in Modesto, California.

This is the largest solar system for producing heat for industrial processes in the U.S. It is made up of 5,056 m<sup>2</sup> of parabolic trough collectors situated on a site lying adjacent to Frito-Lay's snack factory in Modesto, California.



The collectors will operate at temperatures of up to 250 °C to produce steam. This steam is then transferred to a plant where it is used to heat the oil for frying potato chips and other snacks.

The Abengoa Solar system enjoys the support of the California Energy Commission under a PIER (Public Interest Energy Research) program.

The highlight of the year in the United States was however the contract signed with APS in the face of stiff competition from the world’s leading solar companies. The Agreement involves the supply of electrical power over a term of 25 years. To achieve this, Abengoa Solar will build a 280 MW parabolic trough technology plant. This plant, Solana, will be the biggest in the world.

**International**

Outside Spain and the United States, Abengoa Solar has a team that is developing opportunities in other countries. It has the capacity to offer and design the best technical solution for each market and need. In 2008, work continued on the two major ISCC projects. These projects are the first in the world to combine solar energy and natural gas in the same electrical power production cycle. The combination of the two energy sources achieves a lower level of natural gas consumption, thereby curbing CO<sub>2</sub> emissions into the atmosphere.

The projects in Algeria and Morocco make Abengoa a pioneer in the design and engineering of combined-cycle hybrid solar fields.

**The world’s first Integrated Solar Combined Cycle (ISCC) plant in Algeria**

In 2008, construction continued on the parabolic trough plant in Hassi R’mel. Abengoa Solar is carrying out this project in conjunction with Abener, part of the Industrial Engineering and Construction Business Unit, and NEAL (New Energy Algeria).

The project involves the construction of a hybrid station that is made up of a solar field of parabolic trough





collectors with a power output capacity of 150 MW, 20 MW of which will come from a solar field with over 180,000 m<sup>2</sup> of useable reflecting surface area.

Also in 2008, Abengoa Solar strengthened its team involved in international development, which now has the capability to undertake projects in the world's main solar geographies.

### Promotion, construction and operation of photovoltaic installations

During 2008, the market for promoting photovoltaic technology continued to show very high growth in the main geographical locations, with an emphasis on Europe, and Spain, in particular, as the true driving forces behind this growth.

In the case of Spain, this growth was exorbitant and took place mainly through conventional and even "old" technologies. This has given rise to a genuine oversaturation of the sector, thereby resulting in the lowering of tariffs.

Within this context, Abengoa Solar has allocated to photovoltaics a small percentage of its investments, focusing efforts on developing and testing technologies that will enable the company to be competitive in the long term.

Throughout 2008, Abengoa Solar promoted and built grid-connected plants, utilizing the latest technologies, in both photovoltaic modules as well as sun-tracking systems to suitably position panels and obtain higher efficiency and profitability. It now has around 12 MW of power with the capacity to produce about 30% more than conventional systems located in even the best areas of Spain in terms of direct solar radiation.

### Seville PV plant

The world's first commercial plant to use low-concentration photovoltaic technology. With a power output capacity of 1.2 MW, it is located at the Solúcar Platform in Sanlúcar la Mayor.

The plant was started up in May, 2006, and since then operation and use have surpassed the estimated design figures.



Seville PV has 154 trackers and occupies an area of 12 ha.

The plant has the capacity to generate 2.1 GWh of clean energy per year, enough to supply around 650 homes, while eliminating the emission of over 1,800 t of CO<sub>2</sub> each year.

**Copero PV plant**

This is a series of ten photovoltaic installations totaling 1 MW built within Emasesa’s Wastewater Treatment Station (WTS) in the El Copero area of the town of Dos Hermanas (Seville). Ownership of the plants is split 50-50% between Emasesa and Abengoa Solar.

**Las Cabezas**

A 5.7 MW plant with one-axis trackers located in an area of high solar radiation in the province of Seville.

**Casaquemada**

A 1.9 MW plant employing two-axis tracking technology located within the Solúcar Platform. It includes a 100 kW high-concentration installation executed using the latest generation of Concentrix technology.

**Linares**

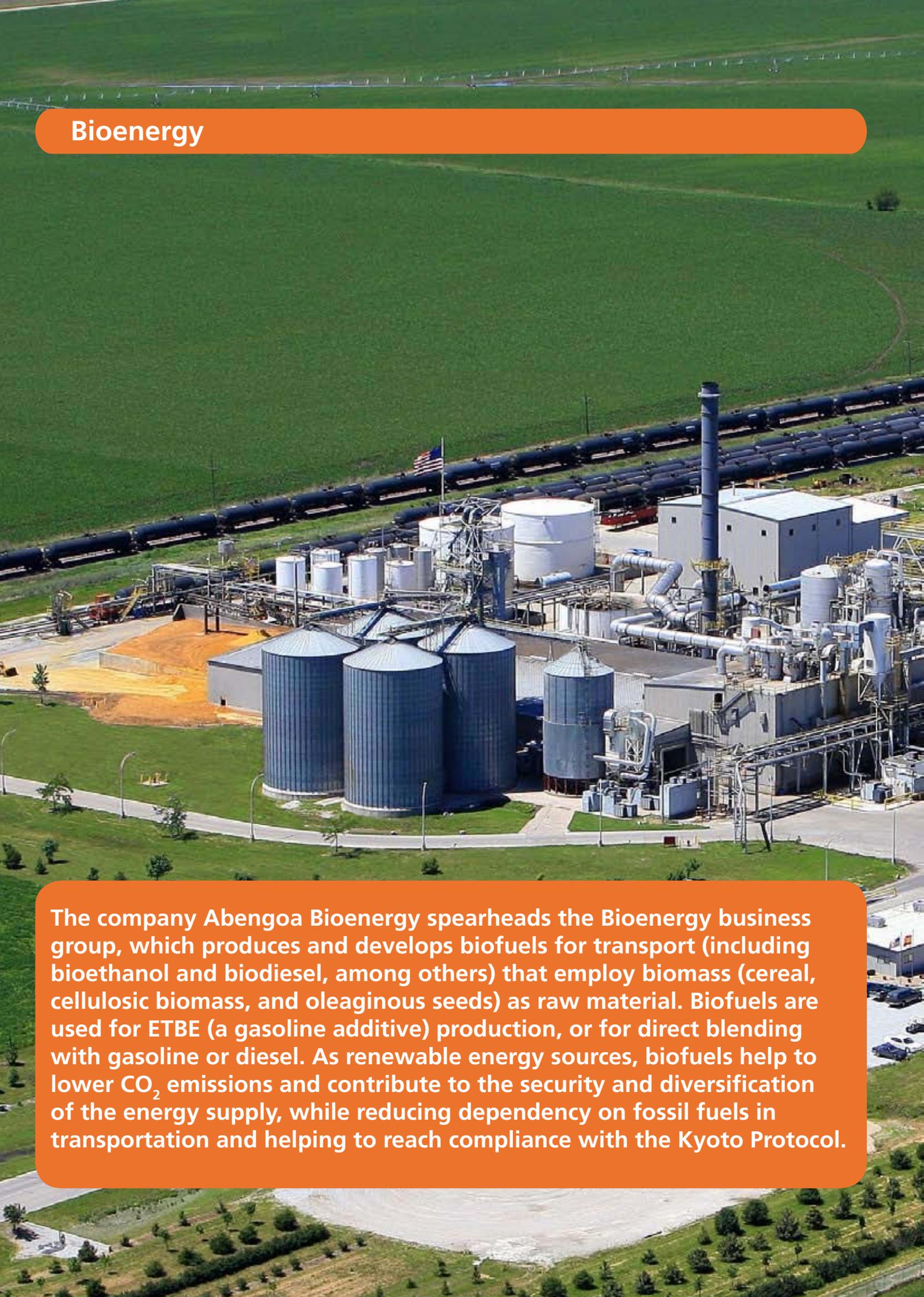
A 1.9 MW plant with two-axis trackers located in Jaén.

**Supply of key components**

Abengoa Solar develops its own technology, designs its plants and ensures the quality and reliable supply of the key elements in determining the cost and production of its installations. In order to fulfill this objective, in 2008 Abengoa Solar managed to guarantee the supply of most key components:

- For power tower CSP plants, Abengoa Solar designs its own heliostats and manufactures them at either its own or third-party facilities. As far as receivers are concerned, Abengoa Solar collaborates with specialized companies in order to make the designs required for each one of its plants a reality.
- For parabolic trough CSP plants, Abengoa Solar designs its own collectors, which are then manufactured by Eucomsa and Comemsa (Abengoa Solar investee companies), and assembled at the two assembly plants built at the Solúcar Platform. The parabolic trough mirrors are manufactured by Rioglass Solar, with which Abengoa Solar signed a commercial agreement enabling a guaranteed supply of this key component with a level of quality that far surpasses that of mirrors available on the market until now. This will translate into lower assembly costs and less breakage in the field. Finally, with respect to receiving pipes, in 2008 Abengoa Solar met its needs in Spain for the next two years.



An aerial photograph of a large industrial bioenergy processing plant. The facility features several large, cylindrical metal silos in the foreground, surrounded by a network of pipes, walkways, and smaller industrial buildings. In the background, there are more storage tanks and a tall smokestack. The plant is situated in a rural area with green fields and a road visible. An American flag is flying on a pole near the center of the plant.

## Bioenergy

The company Abengoa Bioenergy spearheads the Bioenergy business group, which produces and develops biofuels for transport (including bioethanol and biodiesel, among others) that employ biomass (cereal, cellulosic biomass, and oleaginous seeds) as raw material. Biofuels are used for ETBE (a gasoline additive) production, or for direct blending with gasoline or diesel. As renewable energy sources, biofuels help to lower CO<sub>2</sub> emissions and contribute to the security and diversification of the energy supply, while reducing dependency on fossil fuels in transportation and helping to reach compliance with the Kyoto Protocol.



International Presence





## Our business

Abengoa Bioenergy remains a benchmark company in the development of New Technologies for the production of biofuels and the sustainability of raw materials, channeling to such end a tremendous amount of resources into research. Its Trading division also positions the company as a service provider able to offer global solutions, with an impressive ability for marketing and managing commodities, reliably backed by its global production capacity, raw material procurement and highly efficient operations – cornerstones that afford reliability and critical mass, which are key to optimum business development.

Abengoa Bioenergy's international marketing and cellulose bioethanol technology capacities, coupled with its farming, productive and local marketing capacities, will give rise to very important synergies enabling the company to register significant growth in the world bioethanol market and to obtain the technology that will help to achieve lower costs per gallon of ethanol.

Abengoa Bioenergy contributes towards sustainable development by placing fuel compounds obtained from renewable sources (biofuels) on the market through the use of environmentally-friendly technologies that help to achieve a net reduction in polluting emissions, for use in public transportation and private vehicles.

Abengoa Bioenergy develops innovative technological solutions through continuous R&D investment. These solutions are put into practice in production processes, allowing the company to enjoy the same production costs as for conventional fossil fuels, while affording our DGS co-product a competitive edge.

Abengoa Bioenergy upholds its commitment to shareholders in the creation of value, and contributes to the personal and professional development of its employees through continuous training and by establishing and following up on individualized plans.

Abengoa Bioenergy creates new opportunities for sustainable rural development, since it encourages energy crops and the creation of farming industries, thus helping to maintain employment and income levels in rural areas.

Bioethanol and biodiesel are renewable and clean energy sources which, for some time now, have proved to be a reliable and effective replacement for gasoline and diesel fuel in vehicle engines, while helping to diversify and improve the security of the energy supply. Their use, either in a pure state or blended with fossil fuels, reduces CO<sub>2</sub> emissions, slows down climate change, and reduces the emission of polluting agents into the environment.

The company's activities can be grouped into five major areas:

- Raw material procurement.
- Bioethanol origination.

- Production.
- Bioethanol, DGS and sugar trading.
- New technologies.

**Raw material procurement**

One of the driving forces behind the positive business results reported by the Bioenergy business unit is the acquisition of raw materials for producing the biofuels.

The most important grain cereals for the production of bioethanol at Abengoa Bioenergy’s plants are currently wheat, barley, corn and sorghum, not only because of their alcohol yield, but also due to their significant proportion of protein, highly valued in the livestock feed sector (DGS). As for biodiesel production, the most frequently used oils are soy and palm.

Throughout its history, Abengoa Bioenergy has managed to build up a great deal of experience in both the supply and logistics of raw materials. It has displayed great prowess and versatility on the international stage and also when purchasing on the domestic market, and has reached direct supply agreements with farmers, thus ensuring that the group’s plants have the amount of cereals they need. Similarly, the company has in-depth knowledge of the applicable regulations for operating in the European Union and within the U.S. government.

At Abengoa Bioenergy Brazil, the company grows sugarcane while maintaining sustainable rural development methods, biodiversity, and regional economic growth. Its subsidiary Abengoa Bioenergía Agrícola guarantees the company’s production plants are supplied by signing contracts with landowners, carrying out the necessary tasks for combined use of the land, and with farmers, by providing the necessary resources and consultancy in order to achieve optimal performance.



**Bioethanol origination**

In addition to Abengoa Bioenergy’s own bioethanol production capacity, which is marketed by the trading subsidiaries, bioethanol origination from third-party producers also represents a large part of the business, adding

further capacity to a common pool, which allows for greater flexibility and competitiveness in terms of the customer portfolio.

### Production



Bioethanol is produced in plants across Europe and the U.S., and more recently in Brazil. Bioethanol is obtained from cereal grain, through chemical processes and treatment, to produce either ETBE (a component of all types of gasoline), or for direct blending with gasoline, obtaining biofuels, mainly e85 (a mixture of 15% gasoline and 85% bioethanol), but also as e10 (90% gasoline and 10% bioethanol). The DGS co-product is obtained during the bioethanol production process. This is a compound with a high protein content resulting from the extraction of the starch in cereals, and is ideal for the production of livestock feed.

The production of bioethanol from sugarcane also returns sugar as a by-product. This sugar is processed to make it suitable for human consumption and for further use in producing other food products.

Abengoa Bioenergy currently owns 10 bioethanol and DGS-producing plants distributed throughout Europe, the United States, and Brazil, which provide a total installed production capacity of 390 Mgal per year. The company also has several others under construction or in the project phase in both Europe and the U.S..

### Bioethanol, DGS and sugar trading

Abengoa Bioenergy has set up offices in key places for global bioethanol trading: in Rotterdam, the Netherlands, with immediate access to Europort and exports; in St. Louis, Missouri, in the U.S., in the heart of the country's main cereal production and cattle breeding area; and in São Paulo, Brazil, the birthplace of bioethanol-from-sugarcane production. Through all of them, Abengoa Bioenergy is able to meet the bioethanol, DGS and sugar demand of the European, American, and Brazilian markets.

Market fluctuations, political conditions in the different geographical areas and other factors affecting company activities, both in terms of acquisition of raw materials, and in production of marketed products, are carefully

analyzed from a global perspective in order to obtain a better vision of the global markets. Meticulous analysis and risk management yield higher performance of the production processes, always within the scope of sustainable development, while respecting the environment, human rights and the community as just one of the company's guiding principles. Abengoa Bioenergy is therefore able to offer its clients the option of selecting the solution that best meets their needs, providing the necessary reliability and flexibility throughout its bioethanol supply process.

## 2008 in review

### 2008, for Abengoa Bioenergy surviving is not enough...

The continuous economic downturn experienced by the major economies of the world and market volatility played center stage during 2008. Faced with this complicated economic reality, Abengoa Bioenergy has successfully continued to position itself as a leading company in renewable energies and, more specifically, by working towards the replacement of the current energy model of the transport sector, based on fossil energy, with another model based on renewable energies, such as biofuels. Moreover, taking into account that the transport sector represents approximately 25% of Greenhouse Gas Emissions, an increased use of biofuels is particularly important in reaching this goal.

Abengoa Bioenergy has continued to innovate in the area of biofuels obtained from lignocellulosic biomass, a raw material which is usually discarded during the production of biofuels and which provides important environmental advantages, as the energy obtained while they are produced is optimized and Greenhouse Gas Emissions are reduced to a greater extent.

The company has also enjoyed considerable success through continued use of its risk management system, maximizing returns in these trying times while minimizing exposure to extreme situations, thus ending the year with the best results in its history in terms of absolute margins and sales.

This was made possible partly due to the increase in the demand for bioethanol, up by 30% in Brazil as a consequence of domestic market growth through flexible-fuel vehicles (90% of new registered vehicles employ the flexible-fuel system). Europe and the United States experienced a 47% and 25% increase in growth respectively, due to unprecedented legislative support.

Against this legislative backdrop, the approval of the Renewable Energy Directive in Europe ushered in a new era focused on energy efficiency and the production of renewable energies, which foster more sustainable development. The new legislation aims to bring the percentage of renewable energy within the transport sector up to 10% by 2020, which is approximately the equivalent of multiplying current use by five, and to encourage the development of second-generation biofuels by granting a higher tax credit, which will undoubtedly stimulate investments in new technologies. This legislation joins legislation already approved in the United States, both in the new Farm Bill and in the Energy Bill, where a target of 15,000 Mgal (approximately 57,000 ML) has been set for conventional ethanol in 2012, and up to 21,000 Mgal (approximately 80,000 ML) of ethanol in 2022. The bills aim to achieve this through the use of raw materials that improve the life cycle by at least 40%, and offers significant production incentives for lignocellulosic ethanol production. Both legislative initiatives enable us to picture an investment scenario in the sector that will enable us to reach industry targets. In accordance with the new Renewable Energy Directive in Europe, several countries, including Spain, have published legislation setting the minimum mandatory targets for the use of biofuels. This will facilitate the creation of short-term demand.

Volatility has been the constant feature over 2008. The market went from being a market of worldwide demand, driven by the uncontrolled consumption growth in emerging countries, to being a market of uncontrolled destruction of this demand, as the major economies went into recession. As a consequence of these changes, for example, WTI crude oil

prices soared to \$145/barrel, before closing the year at below \$50. The price of cereal dropped from levels of 250 €/t, to prices close to the intervention price in Europe, and from \$8/bushel in the United States, to levels of \$4/bushel.



2008 was a year of consolidation and growth in the United States, Europe and Brazil:

In the United States, construction has continued on two new ethanol plants, with a joint capacity of 180 Mgal, in the states of Indiana and Illinois, after successfully closing their non-recourse financing. We have also started the engineering work and requested the permits for the project under development together with the DoE, in the State of Kansas. This will be the first plant to produce ethanol from biomass on a commercial scale. The plant will process 700 metric tons of biomass per day in order to produce 12 Mgal of ethanol per year, in addition to other renewable energies, specifically electricity and steam.

In Europe, we successfully started up operation of the plant in Lacq, France in August. This is Abengoa Bioenergy's biggest plant in Europe, with a production capacity of 66 Mgal, using approximately 500 Mt of cereal per year. During 2008, we continued construction on the plant in Rotterdam, Holland, which will be the largest bioethanol plant in Europe and one of the biggest plants in the world, with a capacity of 127 Mgal. Construction work is expected to be completed by the beginning of 2010. We also continued with construction work on the biodiesel plant in San Roque, with a capacity of 60 Mgal, which will use crude vegetable oils as raw material and will go into operation during the first quarter of 2009.

In addition to the projects mentioned above, we launched two cogeneration plants in Brazil annexed to the existing plants in the state of São Paulo. These two plants are currently operating under some of the most competitive production costs in Brazil and worldwide, due to the excellent location of these plants, personnel expertise and the direct control of a significant part of farmland by means of long-term contracts.

Finally, and in addition to the collaboration program with the DoE, we are continuing to conduct Research and Development programs in the United States, among which we would highlight the project signed with the Spanish Government against the backdrop of the CENIT Program, for a total of 35 M€. This will enable progress in bioethanol production technology through the gasification of biomass and through catalytic synthesis.



... and our financial results keep improving ...

Suitable asset operation, geographic and product diversification, and proper risk management have enabled us to maximize returns despite gloomy economic conditions, ending the year with the company's best results ever in terms of absolute margins and sales.

The company reported significant growth in sales, brought on by increased product pricing and sales volume both in Europe and the United States, coupled with the consolidation of activities in Brazil for the first time.

As regards co-products, sugar trading started with our entry into Brazil and has become our third source of revenue, enabling us to further diversify our revenue.

Ethanol sales volume enjoyed significant year-on-year growth in comparison to 2007, both in Europe, the United States and Brazil. The increase reported for the United States is due to the start-up of the plant in Ravenna.

Nebraska, which has been operating all year long, whereas in the EU the increase can be put down to the start-up of the plant in Lacq, France.

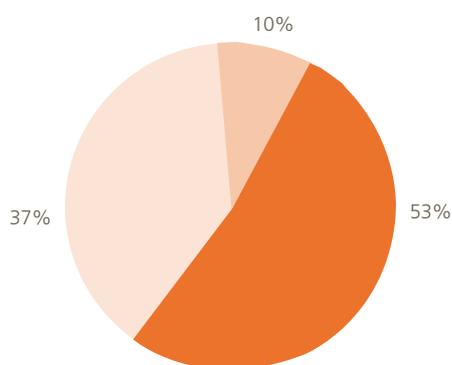
The company's commitment to investing in new productive assets remained unchanged in order to meet the upcoming expansion plan, both in the European Union, the United States and Brazil, thereby confirming Abengoa's unwavering commitment within the biofuel sector.

Over 2008, Abengoa Bioenergy remained heavily involved in R&D&i, as evidenced by its numerous investments over the year and the various agreements reached with groundbreaking companies in countries such as the U.S..

### Our activities

The various business lines of Abengoa Bioenergy have traditionally been developed in Spain, Europe, and the U.S.. Following the acquisition of the Brazilian company, Dedini Agro, Abengoa Bioenergy gained a strategic position in the world's main bioethanol production and consumption market for transportation, thereby becoming the only production company in the world to be firmly established within all three major bioethanol global markets. Further opportunities on other geographies are also being analyzed.

#### Bioethanol Production 2008 - Geographic Distribution



United States

Brazil

Europe

#### Operative Results 2008

	Europe	United States	Brazil	Total
Bioethanol (Mgal)	111	163	31	305
DGS (t)	290,747	470,179	-	760,926
Exported Electricity (MWh)	335,724	-	-	335,724
Sugar (t)	-	-	452,468	452,468

**Main milestones**

The bioethanol industry experienced unprecedented global growth in 2008. Likewise, Abengoa Bioenergy continued to implement its strategy for growth in Europe, the United States, and Brazil.

**Europe**

The chief milestones reached in 2008 for European operations were the following:

- Bioethanol production in Babilafuente, Salamanca, resumed in July 2008.
- Agility and versatility in raw material cereal grain exchange in the plants. The company was able to adapt to prevailing market conditions at all times, having used barley, wheat, corn, and sorghum during the same year, and to make the changeover in as short a time as possible.
- Consolidation of operations at Abengoa Bioenergy France.
- Bioethanol from cereal production started in Lacq in August 2008.
- 127 Mgal construction project progress on schedule in the Europoort, Rotterdam (the Netherlands).
- Rotterdam construction site Ground Turning Ceremony held on February 13<sup>th</sup>, 2008.
- Operational start-up of the San Roque biodiesel plant in Cádiz.
- 894,000 t of cereal (sorghum, corn, wheat, and barley) and 18,200 t of vegetable oils purchased for the European plants.
- 320,000 t of DGS marketed, 95,000 t of which come from a new product, sorghum-based DGS.



- 138 Mgal of bioethanol distributed in European markets.
- Bioethanol exports pool consolidation, managing a total volume of 66 Mgal.
- 30 Mgal of third-party bioethanol originated.
- Spanish e85 market consolidated with 132,000 gal produced and marketed in over 15 service stations.
- e85 supply in public service station networks in Germany started, with agreements signed to distribute 265,000 gal in 20 service stations.

### The United States

In 2008, the company reached the following milestones in the U.S. market:

- Successful completion of the first year of operation for the bioethanol production plant in Ravenna, Nebraska - the company's largest plant to date, with 88 Mgal of installed production capacity and performance outstripping design specifications.
- On-schedule progress in the construction of two plants similar to the one in Ravenna, in the States of Indiana and Illinois.
- Awarded \$4 M from the State of Illinois to assist with the construction of the new Illinois production facility using local labor.
- Installation of new equipment in the two facilities located in York and Ravenna, Nebraska, to extract corn oil, which is now marketed as a new product to supplement revenue from these facilities.
- Recognition by the St. Louis Regional Chamber of Commerce as a "Greater St. Louis Top 50" company, which has had a significant economic and social impact on the region in ways that have positively affected the future of the business community.
- Relocation of corporate offices in St. Louis to a new building, almost doubling total work area to 3,450 m<sup>2</sup>, providing a better working environment for employees through an open floor plan with natural lighting and improved safety and security and energy efficiency, while still reusing 95% of the private office and conference room furnishings to minimize the environmental impact.
- Commodities:
  - Grain originated: 59 MBsh
  - Ethanol production: 163 Mgal
  - Natural Gas procured: 5.2 MBTU
  - DGS produced: 470,000 t
- Successfully managed the commodity risk for ABUS facilities through historic price volatility.
- After benchmarking for ethanol price received and corn price paid, rated highest performer in managing risk and margin management.
- Successfully managed logistics for all customers, with zero complaints received.
- Successfully developed and implemented RIN tracking and assignment program for ABUS facilities.
- Implemented corn oil marketing for ABUS facilities.
- Supported Abengoa Sustainability Initiative, created GHG emission work plan.

Continued to advance the Biomass Supply division for the purpose of developing and commercializing the procurement, supply, storage and transport of biomass for ethanol production.

## Brazil

2008 saw the company consolidate its position in the Brazilian market. Abengoa Bioenergy Trading Brazil, the new Abengoa Bioenergy Brazil subsidiary, was created with the main objective of commercializing bioethanol and its co-products in this country. Chief milestones are the following:

- Electricity sales contract to the Brazilian government of 70,080 MWh/year, for 15 years starting in 2010.
- Construction of the electric energy cogeneration project started in Abengoa Bioenergy São Luiz and Abengoa Bioenergy São João.
- Standardization of farmer and landowner contracts for raw material supply.
- The company's financial structure was streamlined, having restructured external debt and provided necessary funds.
- Final retail distribution network start-up for 3 service stations - sales capacity:
  - over 1 Mgal of hydrated bioethanol
  - 132,000 Gal of gasoline
  - over 1.3 Mgal of biodiesel-diesel oil blend (2%) per year
- Operations agreements to reach up to 750 service stations.

## Production in Europe

Abengoa Bioenergy is the European leader in the production of bioethanol as a biofuel, and it currently operates three plants in Spain: Ecocarburantes Españoles, in Cartagena (Murcia); Bioetanol Galicia, in Teixeira (La Coruña); and Biocarburantes Castilla y León in Babilafuente (Salamanca), with a total installed capacity of 40, 52 and 53 Mgal a year, respectively.

In addition, Abengoa Bioenergy, through Abengoa Bioenergy France, has consolidated operations in its fourth plant in Europe, with a production capacity of 66 Mgal a year, using corn and low-quality alcohols of vegetable origin as raw materials.

Construction on the Rotterdam plant, with a projected production capacity of 127 Mgal per year, has progressed substantially and the plant is expected to start operations on schedule by late 2009.

### Main milestones

In Europe, the main milestones reached in 2008 through operations came in many shapes and forms, ranging from the enlargement of existing facilities to the launch of new projects, including the critical issue of adapting to changing conditions within the cereal market, swapping raw materials successfully and consolidating operations for the cereals plant in France.

One of the company's goals is to become a world leader in ethanol technology and production capacity in order to deliver a sustainable energy alternative to the transport sector. Through its activities, Abengoa Bioenergy not only enhances the energy sector, but also aims to improve the environment and help create new opportunities for sustainable rural development by promoting energy crops and creating farming industries, in turn helping to maintain employment and income levels in rural areas.



### Industry

Thanks to the experience gained in the trading business, last year saw Abengoa Bioenergía roll out numerous domestic and international marketing initiatives to strengthen its position as one of Europe's main bioethanol managers and suppliers. The company managed to successfully distribute over 138 Mgal in 2008.

Most of the bioethanol is produced in four plants in Spain and France, but over 13 Mgal are also obtained from third-party suppliers, which increases supply capacity and enables the company to control European operations, thereby sending a clear message of the company's potential to the international market.

In addition to bioethanol marketing, work was conducted over 2008 to develop an e85 supply network (85% bioethanol, 15% gasoline) in Europe, mainly in Spain and the Netherlands. This network is key to expanding bioethanol and, although it is still in its initial stages, it promises to become a de facto reality over the next few years, which will provide consumers with biofuels throughout all Spain and Europe.

### Legislation

For the second time in just five years, the European Union has approved innovative laws on transport fuels that will drive historic expansion in biofuels while providing the legal framework for this expansion to take place.

In 2003, Europe adopted for the first time an integrated package of legislation that encouraged the substitution of gasoline and diesel. A guideline biofuels target of 5.75% of the transport fuel market was set for 2010 and, as an incentive, the decision was made to make biofuels exempt from fuel taxes.

These measures were crucially sufficient to encourage the introduction of biofuels into most national markets. Indeed, a few Member States such as Spain have undertaken to achieve higher consumption levels than the European target. Nevertheless, these measures generally failed to provide the expansion in renewable energy that European policymakers had hoped for. At the end of 2008, the European Union approved two new laws that will both consolidate and further stimulate biofuels for the decade to come.

The Directive on renewable energy sources requires that by the year 2020 at least 10% of transport fuel in all countries of the European Union comes from renewable energy, equivalent to 30-35 Mt of oil (or 50 Mt of ethanol) every year. Unlike the previous legislation, this is an obligatory minimum target, backed up by a requirement to meet national guideline targets, which will progressively increase consumption from current levels to at least the 10% level. The legislation provides a special incentive for lignocellulosic biofuel, by allowing the consumption of every liter to count for double in meeting the target.

Further incentives to consume biofuels in this new package of laws include a 6% reduction in the greenhouse gas emissions from gasoline and diesel life cycles between 2011 and 2020. Also by the year 2020, 20% of all energy consumed in the European Union has to be from renewable sources. This colossal demand for green energy will, of course, also be supplied by renewable sources of electricity, heating and cooling. It is hoped that biofuel demand will be significantly higher than the minimum 10% for transport fuels.

In order to meet this required expansion in demand, the Directive on fuel quality was updated so that by the end of 2010, the 5% maximum limit on ethanol in gasoline will be doubled to 10% throughout Europe. Also in the legislation, a special dispensation has been granted by Europe's lawmakers taking into account the volatility of gasoline when it includes small blends of ethanol. This dispensation will significantly lower the costs of adding ethanol to gasoline without affecting vehicle performance or safety in any way. Work is now underway at the European Standards Institute to upgrade the European ethanol and gasoline standards to meet these changes.

Another feature of the new legislation is that beginning in 2010, a system of certification will come into operation that will guarantee the sustainability of biofuels sold within the European market. These certificates will incorporate a raft of strict social and environmental criteria that biofuels must adhere to, including a minimum 35% reduction in greenhouse gases compared to the average emissions from gasoline and diesel. Abengoa Bioenergy has been preparing itself assiduously to ensure that it is ready to comply with the sustainability certificates as soon as they are rolled out.

In combination, these two Directives secure the future of existing biofuel production facilities and those under construction in Europe. At the same time, they pave the way for long-term growth within the biofuel industry with existing commercial technology, while providing special incentives and encouraging the development of the next generation of energy from lignocellulose. In short, they provide the market platform and vision for the decade to come that the industry has been seeking.

### Internal

At the Bioethanol Galicia facilities in La Coruña, Spain, existing installed production capacity was successfully expanded by a further 16%, bringing final capacity to 52 Mgal of bioethanol per year.

2008 saw a rise in the price of cereals, mainly wheat and barley, our main raw materials in Europe, and all operations were affected. With the ever-present purpose of improving operations within a framework of sustainability, Abengoa Bioenergy worked to develop the technologies needed to swap raw materials at two of its plants in Spain: in La Coruña and Cartagena. The changeover was successfully completed and both plants are already operating with sorghum instead of their original wheat, barley and corn.

In May, the VII World Biofuels 2008 world conference was held in Seville, Spain, for three days. It was attended by over 150 representatives of biofuel producing companies, raw material manufacturers, oil operators, R&D&i public and private institutions, and environmental protection organizations.

The start-up of the Lacq plant in France proved to be of enormous importance for Abengoa Bioenergy as it reinforces the company's leading position in Europe's bioethanol market, increasing total production capacity by 45% to bring the total to 210 Mgal per year.

The company's European activities will increase significantly with the new project started in 2007. The construction of a bioethanol plant in the Europoort, in Rotterdam (The Netherlands), with a final installed production capacity of 127 Mgal of bioethanol a year. Together with the plant in France and the three currently operating in Spain, this new addition will further consolidate Abengoa Bioenergy's position of leadership as Europe's foremost bioethanol producer and one of the largest in the world.

**Biofuel information campaign**

In the months of May, June and December, Abengoa Bioenergy conducted a press campaign targeting general-interest and economic newspapers, including their on-line editions, throughout the major European Member States.

The alleged impact of the use of green fuels on the soaring price of basic raw materials, and, therefore, food; the hypothetical increase in greenhouse gas emissions compared to fossil fuels; the deforestation of tropical rainforests; and their involvement in the loss of biodiversity, are some of the fallacious arguments that have been used to attack bioethanol and, as an extension, bioethanol producing companies.



The information campaign aims primarily to counteract the numerous misconceptions regarding bioethanol and the associated industry that have been brought to the public's attention, and to refute them with documented



evidence. Abengoa has used the campaign to unravel the numerous twisted arguments that have been put forward over the year with verifiable data and facts.

**Production Plants**

**Ecocarburantes Españoles - San Roque, Cádiz, Spain**

- Owned by Abengoa Bioenergy (over 95%) and IDAE (slightly under 5%).
- Installed capacity of 40 Mgal bioethanol per year.
- DGS production capacity of 110,000 t per year.
- Electrical power production capacity of 135,000 MWh per year.
- Cereal consumption capacity of 300,000 t per year.

Ecocarburantes Españoles, S.A. is the proprietary company of the bioethanol production plant in Valle de Escombreras, in Cartagena, Spain. Abengoa Bioenergía, S.A. owns slightly more than 95% of the company, with the Spanish Institute for Energy Diversification and Savings (IDAE) owning slightly less than 5%.

Part of the CO<sub>2</sub> produced during the cereal-to-ethanol transformation process is sold to third-party installations close to the plant, thereby eliminating the need for these companies to produce their own additional CO<sub>2</sub> and, therefore, taking even greater advantage of the bioethanol production process and reducing carbon dioxide emissions into the atmosphere.

Similarly, electricity is generated during the production process, which provides power for the entire plant, with the surplus being returned to the national power grid.

**Bioetanol Galicia - Texeiro, La Coruña, Spain**

- Owned by Abengoa Bioenergy (90%) and Xes Galicia (10%).
- Installed capacity of 52 Mgal of bioethanol per year.
- DGS production capacity of 120,000 t per year.
- Electrical power production capacity of 165,000 MWh per year.
- Cereal consumption of 340,000 t per year.



- The plant, which is owned by Bioetanol Galicia, S.A., is currently in operation in Teixeira (La Coruña) and boasts a yearly bioethanol production capacity of 52 Mgal. The company is 90% owned by Abengoa Bioenergía and 10% by Xes Galicia.

The surplus electricity generated during bioethanol production, which greatly exceeds actual plant consumption, is returned to the national power grid, thereby generating some of the profits from the process.

### **Biocarburantes de Castilla y León - Babilafuente, Salamanca, Spain**

- Owned by Abengoa Bioenergy (50%) and Ebro Puleva (50%).
- Installed capacity of 53 Mgal of bioethanol per year.
- DGS production capacity of 120,000 t per year.
- Electrical power production capacity of 139,000 MWh per year.
- Cereal consumption of 585,000 t per year.

The plant, which is owned by Biocarburantes de Castilla y León, S.A. in Babilafuente (Salamanca), has an annual production capacity of 53 Mgal, 1.3 Mgal of which will be obtained from converting cereal biomass into bioethanol by means of a new technology that is currently being developed by Abengoa Bioenergy New Technologies.

The plant will be the first in Europe with this capacity for bioethanol production from biomass, specifically from cereal straw employing enzymatic hydrolysis technology.

The company Biocarburantes de Castilla y León is 50% owned by Abengoa Bioenergía, S.A. and Ebro Puleva, the largest Spanish foodstuffs group.

As with the other Spanish plants, plant-generated electricity that is not employed in bioethanol production is sent to the national power grid.

### **Abengoa Bioenergy France - Lacq, Pau, France**



- Owned by Abengoa Bioenergy (64%) and Oceol (36%).
- Final installed capacity of 66 Mgal of bioethanol per year.
- Annual DGS production of approximately 145,000 t.
- Cereal (corn) consumption estimated at around 500,000 t per year.
- Annual wine and sundry alcohol consumption estimated at around 13 Mgal.

Abengoa Bioenergy France is the company that owns the fourth Abengoa Bioenergy plant in Europe (the first outside Spain) for ethanol production. It is 64% owned by Abengoa Bioenergy and 36% by Oceol, an association of the region's main agricultural cooperatives and industries.

This plant employs corn and low-quality vegetable alcohols as raw materials and is located on the Petrochemical Platform at Lacq, Pyrénées-Atlantiques (France). The projected total annual production capacity is 66 Mgal of bioethanol, broken down into 53 Mgal using corn as the raw material, and 13 Mgal coming from the distillation of low-quality vegetable alcohols.

**New Projects**

**Abengoa Bioenergy Netherlands - Europoort, Rotterdam, the Netherlands**

- 100% owned by Abengoa Bioenergy.
- Projected annual bioethanol production capacity of 127 Mgal.
- Projected annual DGS production capacity of 380,000 t.
- Annual cereal consumption capacity of 1.2 Mt.

Abengoa Bioenergy Netherlands started the first construction phases for the plant, located in the Europoort, Rotterdam, in September 2007. The 127-Mgal capacity plant will begin operations during the last quarter of 2009. Abener, a subsidiary of Abengoa and which has constructed other bioethanol plants, is carrying out the construction work. The Dutch plant will directly employ 75 professionals.

**Bioener Energía - Zierbana, Vizcaya Spain**

- 50% owned by Abengoa Bioenergy and 50% by EVE (Basque Energy Agency).
- Planned annual bioethanol production capacity of 53 Mgal.
- Planned annual DGS production capacity of 176,000 t.
- Annual cereal consumption capacity of 527,000 t.

Bioener Energía, S.A. is located in Zierbana, Bilbao (Spain). The company is 50% owned by Abengoa Bioenergy and 50% by EVE (Basque Energy Agency). The plant has obtained the required environmental permits and construction will begin when a binding biofuels framework is implemented in Spain. The plant will hire approximately 65 highly qualified professionals. The plant includes a 40.4-MW cogeneration cycle.

**Biodiesel**

Biodiesel is a renewable and biodegradable biofuel obtained through the reaction of a light alcohol (ethanol or methanol) with any type of animal or vegetable oil or fat. The resulting chemical reaction is known as transesterification and produces biodiesel or Fatty Acid Methyl Ester (FAME) and glycerin.

Biodiesel does not contain any sulfur and, compared to diesel obtained from oil, reduces the emission of greenhouse gases (CO<sub>2</sub>, among others), carbon monoxide (CO), particles (PM) and other contaminating agents.

Moreover, it is highly suitable for use as a fuel and can completely or partially replace diesel engine fuels, without any need for special conversions, adjustments or regulations to the vehicle engine. It similarly increases the engine lubricity and flash point, thus reducing the danger of explosion due to gas emanation.

The company's chosen conversion technology for the San Roque plant belongs to Desmet-Ballestra, the leading company in the vegetable oil processing and biodiesel production sector. This technology uses crude vegetable oils for biodiesel production and its main competitive edge, when compared to other technologies, is flexibility in plant design for processing any type of vegetable oil. The vegetable oils to be used are mainly soya, rape and palm, or fractions thereof.

#### **Abengoa Bioenergía San Roque - San Roque, Cádiz, Spain**

- 100% owned by Abengoa Bioenergy.
- Annual biodiesel production capacity of 60 Mgal.
- Annual pure glycerin production capacity of 22,000 t.
- Estimated annual vegetable oil consumption capacity of 205,000 t.

The Abengoa Bioenergía San Roque plant is located on a site annexed to the Gibraltar Refinery on the Palmones de San Roque industrial estate (Cádiz, Spain).



The biodiesel produced at the plant will be used in 5% mixtures with diesel at the Cepsa refinery.

#### **Production in the United States**

Abengoa Bioenergy is one of the largest bioethanol producers in the United States. After starting production at the Ravenna plant in Nebraska back in 2007, the company currently has an installed annual production capacity of approximately 200 Mgal at four plants in Nebraska, Kansas and New Mexico. Having marketed over 163 Mgal of ethanol, and close to 470,000 t of DGS during 2008. Abengoa Bioenergy is similarly one of the largest traders in ethanol and DGS from grain. Moreover, it has a customer network that includes Shell, Exxon-Mobil, Total, Valero and BP. Most of the ethanol is marketed in the form of e10, and after new commercial relationships established during the year, sales on the e85 market have been significantly increased. With the two new facilities under construction in Indiana and Illinois, total annual production capacity should increase by the end of 2009 to almost 400 Mgal.

Abengoa Bioenergy continues to operate the 3 existing plants in Colwich, Kansas, Portales, New Mexico and York, Nebraska. However, different companies have been constituted for the new projects, including the new plants in Indiana and Illinois, the now operational plant in Ravenna, Nebraska and the future biomass commercial plant in Hugoton, Kansas. Similarly, separate companies have been created for marketing, engineering and construction activities.

The company has continued to strengthen its management team with key contracting and improvements in compensative policies and prioritization in the competence program for all employees, which began in 2004. The focus on employee communication and development has helped to retain valued employees during the recent period of rapid growth in the industry. The new competence system and employee development programs (including various agreements with universities in the region) have been successful in attracting new talent to spur on further growth.

### Industry and market

The U.S. ethanol industry continued its rapid expansion during 2008 with the completion of several new plants previously under construction in 2007. At least 35 new plants representing approximately 2.5 Bgal per year of capacity completed construction and began production operations in the first half of 2008. Operating plants now total approximately 180 in number with installed capacity of approximately 11 Bgal. This dramatic growth helped to fuel some market volatility as demand struggled to keep pace with supply. Due to difficult market conditions arising from this rapid industry expansion, all operations at existing facilities have been focused on maximizing ethanol yields, rather than on total production gallons, and new opportunities have been taken to improve and maintain the existing facilities for maximum efficiency.

### Legislation

During 2008, the Environmental Protection Agency (EPA) delayed the publication of its first draft of proposed regulations for the implementation of the Energy Independence and Security Act of 2007, which was signed into law by President Bush on December 19th, 2007. After public comment, final regulations are expected to be published in mid-2009. This legislation provided for dramatic increases in vehicle fuel economy standards and in the usage of renewable fuels from both traditional grain starch feed stocks, and from advanced feed stocks such as cellulose.

In passing this legislation, the United States Congress significantly increased the requirement for usage of renewable fuels within the United States compared to the prior legislation adopted just two years earlier in 2005. The 2007 law increased the Renewable Fuel Standard (RFS) for 2009 from the 6.1 Bgal required under the existing RFS to 11.1 Bgal, including 10.5 Bgal of Conventional Biofuels such as corn-based ethanol, and 600 Mgal of Advanced Biofuels, of which 100 Mgal could be ethanol produced from grains other than corn, provided the production process achieves a 50% life cycle greenhouse gas (GHG) reduction compared to oil. It also increased total program requirements from 7.5 Bgal annually to 36 Bgal by 2022. Importantly, nearly two-thirds (21 Bgal) of this 36 Bgal total will come from advanced biofuels such as cellulosic ethanol.

The U.S. Congress gave further support to biofuels with the passing of a new Farm Bill in June of 2008. This new law contains both an Energy and a Tax Title, both of which will strengthen and advance the development of new biofuels technologies, particularly technologies to produce ethanol from cellulose. The Tax Title of this law provides special tax incentives for the production of cellulosic ethanol, and the Energy Title provides specific grants, loans and loan guarantees designed to promote the research and development, implementation and commercialization of cellulosic ethanol, as well as the feedstock supplies and logistics systems that will be required to make commercial production of cellulosic ethanol a reality.

These laws provide excellent legislative support for efforts to make America more energy-independent and more greenhouse gas-friendly, and they are extremely supportive of Abengoa Bioenergy's long-stated goal of making commercial-scale cellulosic ethanol production a reality.

State legislation also continues to favor renewable fuels. Refiners continue to move away from the use of MTBE on a nationwide basis, primarily replacing MTBE volumes with ethanol, and many states have passed their own legislation requiring or incentivizing the increased use of renewable fuels. At the end of 2007, legislation in individual states provided the following support for the ethanol industry:

- 25 states have passed bans or restrictions on the use of MTBE.
- 10 states have adopted state RFS usage requirements or low carbon fuel standards.
- 12 states incentivize the use of ethanol blends and e85.
- 15 states have ethanol production incentive programs.
- 37 states have passed laws eliminating negative pump-labeling requirements for ethanol blends.

### Milestones

As in Europe, great efforts have been made in the United States to expand activities throughout the mid-western states (Kansas, Illinois, Indiana and Nebraska), and to strengthen and enhance process quality at the four existing plants. Moreover, Abengoa Bioenergy has developed tasks aimed at improving the training and qualification of its employees at all organizational levels.

Abengoa Bioenergy of Nebraska has completed more than a full year of operations at the new plant in Ravenna, Nebraska, which is the company's largest bioethanol plant to date, with an installed annual production capacity of 88 Mgal, employing corn as the main raw material. This plant is designed to recycle all process water, which is then treated and ready for reuse. This translates into lower water consumption, minimum contamination and hence, minimum environmental impact.

This year significant progress has been made on the construction of two new plants similar in design to the Ravenna, Nebraska facility, with each of these plants providing an additional 88 Mgal of annual bioethanol production. These plants are located in Illinois and Indiana and will strengthen Abengoa Bioenergy's position in the United States bioethanol market, establishing it as one of this country's leading producers. In September of this year, the Governor of the State of Illinois and other state and local officials visited the plant site for the Illinois facility and announced that the project would be the recipient of a \$4 M grant through the state's Renewable Fuels Development Program. This program was developed to support the construction of new biofuel production facilities within the state using local labor.

Additionally, the company has also carried out continuous improvements and developments at its existing installations. In the case of the York plant in Nebraska, a cellulose biomass pilot plant was inaugurated in October, 2007, thus obtaining cellulose bioethanol for the first time at this location in order to eliminate the use of cereal as a raw material. This is one of Abengoa Bioenergy's main, medium to long-term goals and challenges, and will make the bioethanol industry one of the most environmentally-friendly and in favor of sustainable development. Additionally, equipment has been added to both Nebraska plants to extract corn oil, which can then be marketed as an additional product, providing substantial additional revenues without reducing the production of either ethanol, or DGS feed products.

As in previous years, Abengoa Bioenergy continued in 2008 to develop its strategy of encouraging human potential, which is the critical pillar underpinning its activities. The company has collaborated and participated

with universities in the region to develop plans for studies and practical work placements, aimed at the ethanol industry and the renewable energy world. Also, in-house programs of competence, development and compensation have been developed on all organizational levels to enhance basic knowledge and performance and ensure the professional advancement of its employees.

**Production plants**

**Abengoa Bioenergy Corporation - Colwich, Kansas, U.S.A.**

- 100% owned by Abengoa Bioenergy Corporation.
- Installed annual bioethanol production capacity of 25 Mgal.
- Installed annual DGS production capacity of 78,500 t.
- Combined annual consumption capacity of corn and sorghum of 9.5 Mbsh.



The CO<sub>2</sub> produced is captured and refined by an on-site customer. The produced DGS is not dried in the process; 100% of the co-product is sold in its natural state. Corn and sorghum can be employed simultaneously, although the primary raw material is sorghum, and more than 50% of the plant's energy requirements are provided by methane from a municipal solid waste landfill. It currently employs 48 highly qualified professionals.

**Abengoa Bioenergy Corporation - Portales, New Mexico, USA**



- 100% owned by Abengoa Bioenergy Corporation.
- Installed annual bioethanol production capacity of 30 Mgal.
- Installed annual DGS production capacity of 83,500 t.
- Annual sorghum consumption capacity of 10 Mbsh.

The produced DGS is not dried in the process, but rather sold 100% in its natural state. Corn and sorghum can be employed simultaneously, although the primary raw material is sorghum. Annual bioethanol production capacity stands at 30 Mgal and the plant currently employs 48 highly qualified professionals.

#### **Abengoa Bioenergy Corporation - York, Nebraska, U.S.A.**

- 100% owned by Abengoa Bioenergy Corporation.
- Installed annual bioethanol production capacity of 56 Mgal.
- Installed annual DGS production capacity of 167,000 t.
- Corn consumption capacity of 20 Mbsh.

Over 50% of the produced CO<sub>2</sub> is captured and refined by an on-site customer. The facilities provide logistic services and support to the adjacent ABNT biomass pilot plant. The annual production capacity is 56 Mgal, using continuous batch cooking and fermentation processes. The plant currently employs 48 highly qualified professionals.

#### **Abengoa Bioenergy of Nebraska - Ravenna, Nebraska, U.S.A.**

- 100% owned by Abengoa Bioenergy.
- Installed annual bioethanol production capacity of 88 Mgal.
- Installed annual DGS production capacity of 240,000 t.
- Corn consumption capacity of 32 Mbsh.

With an annual installed bioethanol capacity of 88 Mgal, using continuous fermentation, this facility is



the largest owned by Abengoa Bioenergy in the U.S. to date, and the first to use continuous fermentation technology there. The project includes a double railway circuit for simultaneous loading and shipment of 2.6 Mgal of bioethanol in 95 railroad tanker cars. The plant employs 60 highly qualified employees.

This plant is designed to recycle all process water, which is then treated and ready for reuse, thus consuming less water, producing minimum pollution and hence, minimum ecologic impact.

### **New projects**

#### **Abengoa Bioenergy of Indiana - Mount Vernon, Indiana, U.S.A.**



- Projected annual bioethanol production capacity of 88 Mgal.
- Projected annual DGS production capacity of 300,000 t.
- Annual corn consumption capacity of 32 Mbsh.

When operational, the plant will employ 63 people. It will have the capacity to dry all or part of its DGS production and will be located next to the Ohio River, which will provide access to practically all the eastern half of the U.S., together with the export markets of the entire globe.

#### **Abengoa Bioenergy of Illinois - Granite City, Illinois, U.S.A.**



- Projected annual bioethanol production capacity of 88 Mgal.
- Projected annual DGS production capacity of 300,000 t.
- Annual corn consumption capacity of 32 Mbsh.

When operational, the plant will employ 63 people. It will have the capacity to dry all or part of its DGS production and will be located next to the Mississippi River, which will provide access to practically all the eastern half of the U.S., together with the export markets of the entire globe.

### Production in Brazil

Brazil is one of the biggest world markets for bioethanol, with an annual production volume of over 6 GG (2007-2008). It is expected that bioethanol consumption will continue to grow strongly because of the success of Flex-Fuel vehicles, which now represent 87.4% of vehicles sold in Brazil and which allow either gasoline or bioethanol to be employed.

Abengoa Bioenergy is the only company worldwide that operates in the three biggest world bioethanol markets: Brazil, Europe and the United States. Following this integration, it is expected to obtain significant production growth at the existing Brazilian plants, develop a new plant and internationally market its Brazilian production in a more effective fashion, thanks to its existing commercial network. Moreover, the company intends to adapt cellulose ethanol technology to sugarcane bagasse in order to increase medium-term production and cut costs efficiently.

### Production Plants

#### Abengoa Bioenergia São Luiz - Pirassununga, São Paulo, Brasil



- 100% owned by Abengoa Bioenergy.
- Installed annual bioethanol production capacity of 21 Mgal.
- Annual sugar production of around 275,000 t.
- Annual sugarcane consumption capacity of 3.1 Mt.

**Abengoa Bioenergia Brasil - São João de Boavista, Brasil**



- 100% owned by Abengoa Bioenergy.
- Installed annual bioethanol production capacity of 15 Mgal.
- Annual sugar production of around 230,000 t.
- Annual sugarcane consumption capacity of 2.5 Mt.

**Raw materials trade, logistics and origination**

Abengoa Bioenergy provides solutions to its customers’ bioethanol and grain marketing requirements. It uses its experience and alliances to maximize profit margins, minimizing operational risks through a combination of short- and long-term contracts and structures for estimating price differentials. Thanks to years of production experience, the company has gained detailed knowledge of bioethanol and the raw materials market and we have developed relationships with the major oil companies, and the major trade and raw-materials-logistics multinational companies.

Regarding raw materials, all necessary resources and contractual agreements with providers have been implemented in order to certify all the raw materials consumed by the company’s plants, in accordance with the sustainability criteria prescribed by European Law and the strict requirements imposed by bioethanol customers.

In its aim of offering maximum quality and nutritional safety, the company’s DGS experts provide assistance to the animal feed production market, for a greater optimization of DGS use in products intended for animal feed for cattle, pigs and poultry. Our respected logistics personnel assist in ensuring the products are transported as efficiently as possible and at the lowest possible cost.

Abengoa Bioenergy offers its clients industry summaries, detailing cereal, ethanol, and DGS market fluctuations, and market reports offering objective perspectives on future trends. The company places great emphasis on keeping its customers informed of the ethanol market. It constantly publishes market reports, logistic cost estimates and sales offers, in an attempt to increase transparency and enable customers to operate their plants in the most profitable manner.

### Abengoa Bioenergy Trading Europe

Abengoa Bioenergy Trading Europe (ABTEU) is a subsidiary of Abengoa Bioenergy that provides added value to the company, optimizing efficiency by concentrating supplies, logistics and commercial effort, creating a unique brand name in the market.

#### Products and Services

Abengoa Bioenergy Trading provides the following services and activities:

- Joint promotion of bioethanol produced by various European manufacturers by means of the "pool" concept (total combined volume), which adds flexibility, security and potential to operations.
- Management of supply and cost assessment.
- Searches for sources of bioethanol and other alcohols to be processed at Abengoa Bioenergy's plants.
- Bioethanol management control and logistics coordination, including shipping, handling and storage.
- Assurance of supply contract fulfillment, optimizing bioethanol distribution and logistics.
- Customer after-sales services.

ABTEU offers producers the option of accessing global bioethanol markets by incorporating their production capacity into a combined pool that is traded with the main oil companies and with ETBE producers in Europe. The company has a logistics network in place to ensure supply requirements for commercial ethanol are met with maximum reliability and flexibility. Moreover, ABTEU provides the various parties with access to accumulated production, which guarantees flexibility, quality and reliability in bioethanol supplies.

Through national and international marketing activities in 2008, and based on experience acquired in this business, Abengoa Bioenergy has been able to establish itself as one of the main managers and providers of bioethanol throughout the European continent, It managed to satisfactorily distribute over 138 Mgal over 2008.

Of the total amount marketed and distributed by Abengoa Bioenergy during 2008, 30 Mgal were originated by third-party producers to complete Abengoa Bioenergy production, thereby improving the company's ability to respond to demand from its customers within Europe. This origination capability will be strengthened from 2008 onward due to the arrival of the newly constituted Abengoa Bioenergy Trading Company in Brazil, which will increase the company's direct supply capability, provide product control and optimize brand operations and competitiveness, while also enhancing our exposure on the international stage.

In addition to bioethanol marketing, 2008 also saw the company working to develop a European e85 (85% bioethanol and 15% gasoline) supply network, mainly in Spain, where it already has a 20-service-station network with annual sales of 119,000 gal of e85, and in Germany, where numerous other stations are supplied with a projected annual consumption of 265,000 gal. This network is key to bioethanol expansion and, although it is still in its infancy, will quickly become reality over the coming years, providing consumers with bioethanol throughout Spain and Europe.

## Ecoagrícola

### Products and services

Within the Bioenergy business unit, Ecoagrícola is the company responsible for the comprehensive management of buying the raw materials (cereals, oleaginous seeds, and vegetable oils) required for the Abengoa Bioenergy bioethanol and biodiesel plants, together with the marketing of associated co-products, namely DGS. It therefore receives the raw materials and markets the co-product.

Its activity is centered on plants owned by Abengoa Bioenergy (Ecocarburantes Españoles, Bioetanol Galicia, Biocarburantes Castilla y León, Abengoa Bioenergy France, Abengoa Bioenergía San Roque at present, but also the other European plants on the horizon).

The specific market difficulties in the 2007-2008 campaign, which have caused grain shortages throughout Europe, coupled with massive investments in global cereal markets, leading to tremendous volatility and a steep rise in prices, have caused modifications to the CAP (Common Agriculture Policy), meaning that farmers' obligation to set aside land has now been abolished. On the other hand, high cereal prices have meant that farmers are now less interested in the Energy Crops program incentives. Nevertheless, Ecoagrícola has maintained its Energy Crops offer during the 2008 campaign. Participating farmers have obtained favorable results in comparison to current market prices.

### 2008 highlights

The figures given below reflect Ecoagrícola's leadership in the cereal market for energy use in EU bioethanol production.

- Ecoagrícola has been heading energy cereal contracting in Spain for biofuel production for many years now by signing direct contracts with farmers.
- Ecoagrícola's presence in Spain covers 41 Spanish provinces, in addition to the United Kingdom and Germany, all of which is coordinated by its own network of collaborators, with almost 200 agents.

Ecoagrícola possesses in-depth knowledge of the international raw materials markets, which allows it to anticipate the prices that farmers will receive if they use their crops for biofuels, thus guaranteeing the final price of their production and, hence, their future income, even before they sow a crop.

Ecoagrícola controls each and every operation required to complete the full process for the contracted commodities, ranging from cultivation to storage at plant warehouses, while providing all the necessary services: road and sea transportation, storage and quality assurance.

### 2008 main milestones

- 324,000 t of sorghum, 246,000 t of corn, 107,000 t of wheat, and 217,000 t of barley supplied to the European plants.
- 320,000 t of DGS marketed.
- 23 ML of wine alcohol managed.
- 18,200 t of vegetable oils supplied.
- 95% of raw material suppliers endorsed pursuant to company sustainability criteria.

## Abengoa Bioenergy Trading US

Extreme volatility in commodity prices and the surge in U.S. ethanol production posed significant challenges to Abengoa Bioenergy Trading U.S. in 2008. Faced with record-high corn prices and slumping ethanol prices compared to gasoline, the spread was drastically reduced. The company acted prudently in hedging corn, ethanol and natural gas needs at opportune times, keeping ethanol marketing in highest margin timeslots for Abengoa Bioenergy's production companies. Abengoa Bioenergy Trading U.S. successfully managed commodity procurement, marketing, pricing and logistics through the most tumultuous commodity markets in US history. ABTUS commodity trading activities expanded to coincide with the opportunities presented by price volatility and by the knowledge gained in physical markets. These activities contributed substantial revenues to the company in the US over 2008.

### Products and Services

Abengoa Bioenergy Trading US provides its customers with services that cover all the commercial aspects of ethanol, ranging from obtaining raw materials, signing agreements with farmers and cooperatives, to the sale of bioethanol and DGS on national and export markets:

- Ethanol Marketing.
- Logistics, including rail fleet leases and management.
- Grain procurement and back-office accounting.
- DGS and back-office accounting.
- Natural gas/landfill gas procurement and basis pricing.
- Denaturant procurement.
- Corn oil marketing.
- Hedging and risk management (for corn, ethanol, DGS, natural gas and denaturant), including drawing up and executing strategies that encompass exchange transactions and futures and options trading, OTC swaps and options, money market and marketing, basic targets for both corn and natural gas.
- Commodity pricing for ABUS facility budgets and forecasting.
- Assistance in developing marketing and logistics plans for Maple projects.

ABTUS also engaged in the following trading activities for its own account in 2008:

- Ethanol Buy-Sell transactions.
- Ethanol Logistical Swap transactions.
- DGS trading.



## Environmental Services

**Befesa is an international company specialized in the integral management of industrial waste and the generation, transportation and management of water. Befesa is strongly committed to society and to helping forge a sustainable world.**



International presence



## Our business

Befesa manages more than 2.6 Mt of waste and recycles more than 1.3 Mt to create new materials, thereby cutting yearly CO<sub>2</sub> emissions by over 1 Mt. It has the capacity to desalinate more than 1 M of m<sup>3</sup> of water a day, which is equivalent to the water supply required by 5 M people. Befesa's main activities are the following:

- Aluminum waste recycling. This business line provides services involving the collection and processing of waste with aluminum content, the manufacture and marketing of aluminum alloys, and also the design, construction and assembly of equipment related to aluminum recycling. The production and sale of aluminum alloys is intended primarily for the automobile industry and the construction sector. This activity plays a special role in reducing CO<sub>2</sub> emissions when compared with the primary aluminum sector. It also allows us to recycle salt slag, the toxic waste produced by the aluminum waste recycling process. Recycling salt slag is an attractive alternative to dumping it and the aim is to separate the metallic aluminum, the salt and the aluminum oxide in order to reuse them. The business enables us to complete a full recycling cycle and to ensure the integral use of waste with aluminum content.
- Steel and galvanization waste recycling. This particular field involves processing and recycling waste stemming from the production of common and stainless steel, as well as waste produced from the steel galvanization process. Befesa boasts eight production plants in Europe to carry out these activities. Befesa's recycling activities play a fundamental role in the zinc recovery cycle, thereby avoiding the pointless loss of tons of this material by cutting down on dumping and helping to reduce the need to mine zinc, nickel and chromite from our natural surroundings. Befesa is the European leader in the treatment and valorization of steel powder and the only company in Spain able to offer an integral service of collecting and processing steel powder for valorization.
- Industrial waste management. This line of business carries out integral industrial waste management and has an active role to play in all stages of the industrial waste management cycle, ranging from transportation, temporary storage, processing and valorization up to the final recovery and deposit of the waste in a controlled and secure manner, in accordance with both Spanish and European environmental law. This division also offers a broad range of industrial cleaning services with extra added value for most industrial sectors. Another of our business lines is furnishing effective solutions for the collection, transportation and elimination of transformers, condensers and materials contaminated with PCB, as well as the recycling of film used to



cover greenhouses. This unit also performs desulfurization work by producing sulfuric acid from residual sulfur while generating electricity, which is sold and returned to the grid. To conclude its portfolio of services, it also provides integral soil contamination solutions.

- **Water.** The activities of Befesa Agua include the production, management and transportation of water using new technologies and by designing, constructing and operating infrastructures. Befesa Agua boasts extensive expertise in the construction of large desalination plants using reverse osmosis and is widely considered one of the leaders within this field on the international stage. Other product lines include the following: processing of waste waters and industrial waters, hydraulic works and hydraulic infrastructure management. Befesa is therefore able to operate throughout the entire integral water cycle.

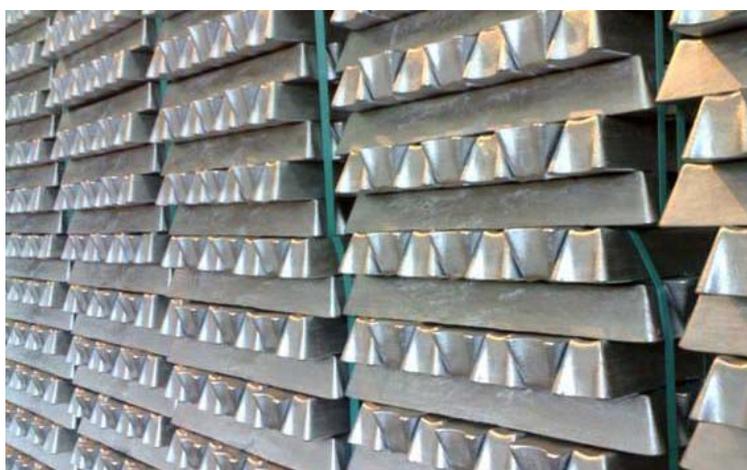
Befesa provides innovative and feasible solutions for industrial waste processing and management and water production and transportation as it continues along its path to becoming an international benchmark company within its chosen sectors and helping to forge a more sustainable world. This commitment is mirrored in its activities:

- Recycling aluminum waste without generating new waste during the process, thereby successfully concluding the entire recovery cycle.
- Managing waste stemming from the production of common steel and stainless steel, and waste produced from the galvanization process, and also recycling different metals, thus doing away with the need for dumping. It also curbs the need to mine the world's natural resources.
- Designing and constructing infrastructures in order to manage waste in a safe, efficient and environmentally friendly manner.
- Managing, transporting, treating and temporarily storing hazardous and non-hazardous industrial waste for valorization, recovery, reuse and final controlled deposit.
- Generating water via seawater desalination technologies, reusing urban waste water and modernizing irrigation systems to reduce their water consumption.
- Protecting rivers and coastlines by purifying urban and industrial waste water.
- Contributing to economic and social development, making water drinkable and furnishing rural and agricultural environments with irrigation systems.
- Developing technologies that improve the efficiency of the integral water cycle.



Befesa aspires to be a world leader in terms of integral industrial waste management and the generation, management and transportation of water, thereby contributing to sustainable development.

In order to achieve this goal, the main pillar on which Befesa leans is investigation, development and innovation. As the company operates in areas where technology plays an important role, the strategic plan for R&D&i aims to coordinate and guide corporate action within this realm, which focuses on the ability of our investments to create value and returns, With this objective in mind. Befesa collaborates with a range of different external collaborators, including universities, institutions and research centers, which enables the company to ensure its resources are used efficiently at all times.



### Summary of 2008

2008 has been a very good year for Befesa, despite the gloomy economic outlook and the uncertainty facing international markets. In 2008, Befesa continued to experience sustained growth in all its fields at a similar rate to that recorded in previous years. This has allowed Befesa to turn in excellent financial results for all its business lines. From a strategic point of view, 2008 has seen the company consolidate its position of leadership in Europe in the recycling of steel waste, with a total of 690,000 t of recycled waste. Alcasa has been successfully integrated into the aluminum waste recycling sector and Befesa has turned out to be one of the European leaders in the recycling of aluminum waste and salt slag, and the only one capable of carrying out the integral recycling of waste with aluminum content. The Water Division has strengthened its standing as one of the leading figures on the international stage, having experienced considerable growth in the field of large seawater desalination plants.

In 2007, Befesa signed an agreement with the Qualitas Investment Fund in order to integrate the respective aluminum waste recycling business (Befesa Aluminio and Aluminio Catalán). This integration process was successfully completed over the course of the year. In 2008, Befesa was awarded a project to design, finance, construct and operate the seawater desalination plant at Tenes (Chlef) in Algeria, which represents an investment of more than \$232 M, with total revenue from the sale of water exceeding the \$1,400 M. Construction has also been completed on the Skikda desalination plant in Algeria, which has begun to operate.

In line with its strategic plan, 2008 saw Befesa carry out different initiatives geared towards continued growth and expansion not only in new countries, but also within new markets and new lines of business. We would highlight the acquisition of the company NRS Consulting Engineers, one of the leading engineering firms from the US water

desalination industry. This marks our arrival into a highly promising market through a very specialized company. Befesa's Water Division has also been set up as a local company by opening offices in key countries such as India, China and Australia. The acquisition of companies like Tracel and L.I.R.S.A. has opened the door to new markets and services pertaining to industrial waste management. This has enabled Befesa to further strengthen its leadership in this area on the Iberian Peninsula. Befesa has also experienced significant growth in Latin America, where it has started construction on several industrial waste processing plants, thus remaining one step ahead of the competition in the countries in which it operates. In addition, 2008 witnessed the consolidation of business concerns in Chile



and Mexico through the affiliates of Befesa, namely Soluciones Ambientales del Norte in Chile and Sistemas de Desarrollo Sustentable (SDS) in Mexico.

**Our activities**

**Aluminum waste recycling**

**Aluminium content waste recycling**

The aluminum waste recycling business unit recovers aluminum content from different forms of waste and scrap. Within this particular field, Befesa's fully comprehensive services include the collection, transportation and recovery of waste and aluminum scrap, and the production of secondary aluminum alloys, as well as their marketing. The primary uses of the aluminum waste recycling process are the production and sale of alloys for the automobile industry and the construction sector. In order to carry out these recycling activities, Befesa has three plants set up in Biscay, Valladolid and Barcelona (Spain).

The production of recycled aluminum alloys has a very important role to play in reducing CO<sub>2</sub> emissions when compared with the production of primary aluminum, and therefore contributes to sustainable development.

The integration of Aluminio Catalán and Befesa Aluminio, which was initiated in 2007 with the Qualitas Investment Fund, was completed successfully in 2008. The resulting company has become the leader in Spain and one of the leaders in Europe in the recycling of aluminum.

During 2008, Befesa Aluminio recycled close to 190,000 t of diverse aluminum waste and produced 128,000 t



of aluminum alloys, thereby avoiding direct CO<sub>2</sub> emissions of 1,400,000 t as produced by the primary aluminum industry.

### Recycling of salt slag

Befesa boasts an integral aluminum waste recycling model: on one hand it develops technologies to improve the management and processing of waste and, on the other, it is the only operator worldwide without solid waste in its production process. Befesa recycles aluminum without producing new waste in the recycling process and is therefore able to close the cycle perfectly. Its salt slag recycling plant is a fine example of efficiency and sustainability.

Throughout the aluminum production value chain, oxides and other impurities are incorporated into the process, the valorization of which is costly from both a technical and financial standpoint. The aluminum valorization process is carried out in rotary ovens with the help of salt fluxes. The final waste from this process has little aluminum content and is made up of impurities accumulated and mixed with the fluxes used in the final stage. This waste is called salt slag and is classified as hazardous because of its high reactivity with water, due to the resulting production of hazardous and potentially inflammable gases. It is valorized entirely at the Befesa plants in Valladolid (Spain) and in Whitechurch (United Kingdom). In addition, the company manages smaller amounts of other waste from the primary and secondary aluminum industry, such as aluminum sludge and fine particles produced from the crushing of aluminum sludge.

During 2008, we treated a total of 230,600 t of hazardous waste, which has been turned entirely into useful raw materials for industry (aluminum, salt fluxes and aluminum oxide), thereby rendering extraction unnecessary. These processes fit in perfectly with the aluminum industry's mid-term commitment to eliminate the dumping of solid waste, which this industry produces both directly and indirectly.

### Sale of machinery and technology

The Technology Division provides technical support to the aluminum waste recycling plants and is also engaged in the design, construction, assembly and start-up of "turnkey" installations for the aluminum and zinc industries.

The division boasts an extensive portfolio of more than 100 installations in 40 countries. Its main products, for which it is an international leader, are automated lines used for the production of 5-25 kg aluminum ingots, casting wheels, truck loaders, rotary ovens, sludge coolers and installations for processing the sludge. Over the course of 2008, contracts have been rolled out to design and construct molding and ingot casting lines for clients such as Alba (in Bahrain), Nordural (in Iceland), Sohar (in Oman), Vedanta (in India) and Rusal (in Russia).

Befesa is currently the European leader when it comes to recycling aluminum waste and one of the leaders in the recycling of salt slag. In addition, Befesa is the only recycler that integrates both sides of the aluminum waste recycling process.

Befesa's current strategy for growth in this area includes organic growth in Central Europe and in the aluminum recycling business, as well as international expansion in the salt slag business. It has progressed from being the European leader to being a global benchmark.

The main competitive edges on which Befesa relies in order to continue enjoying sustainable growth include a profound knowledge of the processes and technologies involved in aluminum waste recycling, a broad range of products derived from secondary aluminum and excellent commercial ties with clients and suppliers of raw materials.

Within the aluminum waste recycling unit, Befesa has global clients such as Renault, SEAT, Cie Automotive and Fagor Ederlan.

### Steel and Galvanization waste recycling

Befesa manages common steel and stainless steel waste, as well as waste produced from galvanization processes, while respecting the environment. These activities prevent the pointless loss of tons of these metals, curb dumping and help to reduce the need to mine zinc and other metals from our natural surroundings. Befesa owns eight production plants in Europe, which are involved in the valorization of steel powders from electric arc and casting furnaces, the recovery and processing of stainless steel waste, the recycling of zinc waste and its alloys from the galvanization industry, metal injections and construction. It also has two companies that provide commercial and logistics services for moving this kind of waste.

In 2008, a total of 538,500 t of residual powder from the production of common steel were recycled, thereby doing away with the need to extract approximately 230,000 t of zinc from the environment. This means we are able to channel a grand total of 126,360 t of this metal back into the productive cycle. The company has also valorized a further 150,128 t of powder obtained from stainless steel production processes, and its contents have been recovered to form expensive and sought-after metals, such as nickel and chrome. In both cases, our secondary processes entailed huge savings in terms of both energy and CO<sub>2</sub> emissions (greenhouse gas) when we compare the equivalent cost of obtaining these products via primary treatments.

This represents 7.4% year-on-year growth in regard to 2007, due to the enhancements and increased capacity of some of the plants, as well as the improvements made to the operating processes for most of them.

By the close of FY2008, the Biscay plants of Sondika and Amorebieta had recycled a total of 18,996 t of assorted zinc waste, and produced a total of 19,756 t, 8,305 t of which correspond to zinc oxide (ZnO) manufactured in Sondika, with the remainder mainly comprising ingots of zinc ore, ingots of electrolytic zinc and the fine zinc ashes obtained in Amorebieta. In turn, overall sales for the period proved considerably higher (11.5%) than the production volume of the two plants, which reached a total of 22,025 t.

In July 2008, the new production facilities of Befesa Zinc Aser were unveiled in Erandio (Biscay). These fall against the backdrop of the plan to modernize and improve the plant as initiated in 2004 and which has entailed an investment of 35 M€.

On a final note, and with a view to adapting our organizational structure to a new model from which to lay the foundations for growth throughout the different business lines and to transform that growth into a broader offer of premium services, capable of exceeding market expectations, the R&D&i and Corporate Development Unit of Befesa Zinc was created towards the middle of 2008, and will become fully operational in 2009.

Befesa is currently the Spanish and European leader in the recycling of steel waste, with a market share far above that of its competitors within the sector.

Befesa boasts a strategic distribution of its plants, which enables it to be close to clients and suppliers alike, and this represents one of its main competitive edges. Other characteristics which differentiate Befesa from its competitors are its extensive knowledge of the recycling processes and the different technologies used, as well as its commercial relations with clients based on long-term collaboration agreements.

The primary areas of growth in the steel recycling business encompass organic growth in Europe, as well as inorganic growth in other strategic locations.

The steel waste recycling market on a worldwide level continues to grow as the authorities continue to step up regulatory pressure to protect the environment. This environmental pressure has reached different levels in the different territories throughout the world, with Europe being the region in which it is most felt.

Befesa's steel waste recycling unit has clients worldwide, including the likes of Arcelor Mittal, Acerinox, Thyssen, Boliden and Nystar.

### Industrial waste

Befesa manages, recycles, valorizes and reuses waste, incorporating the latest technologies under the rule of the three Rs: "Reduction, Reuse and Recycling", based on the premise that the best waste is no waste. Waste is used to recover materials that can be put to subsequent use and the consumption of new raw materials is therefore avoided. Its business concerns also encompass transportation, processing and the temporary storage of hazardous



and non-hazardous industrial waste for its valorization and final controlled deposit, as well as environmental consultancy services. The company has more than 15 centers located throughout Spain, in order to provide services to clients, most of which are private companies from the pharmaceutical, chemical and petrochemical industries.

During 2008, Befesa managed to maintain its excellent standing in the sector. At the beginning of the year, it acquired the Tracel plant, located in Guarromán (Jaén), which has an evaporator and a physicochemical and biological processing plant, thus reinforcing its management services for hazardous waste. In all, Befesa has managed 1,291,000 t of industrial waste, 40% of which corresponds to hazardous industrial waste, representing a 10% year-on-year increase over figures for 2007.

**Industrial cleaning**



The industrial cleaning division contributes to the sustainable development of the industries in which it renders its services, combining the goal of minimizing production and recovery of waste with the reuse of raw materials, coupled with more efficient equipment and, therefore, lower energy consumption. Its wide range of services includes mechanical and high pressure hydrodynamic cleaning processes, such as ultra-pressure hydrodemolitions and hydrocutting; chemical cleanings and steam blowers; air through circuits and boilers; change of catalyst beds; cleaning of refinery tanks and oil installations, both manually and via automated systems; on-site waste treatment by means of mobile and fixed plants, and the cleaning of interchangers.

Befesa follows a strategy enabling it to provide specialized industrial services and to adapt to the needs of the market, which is governed by strict legislative and regulatory provisions. Over the course of 2008, Befesa acquired the company Limpiezas Industriales Robotizadas, L.I.R.S.A., which specializes in cleaning interchangers and operates out of Spain, France, Italy, Switzerland, Portugal and the United Kingdom. It also invested in the purchase and development of the latest available processes and technologies in order to tailor them to the specific needs of its clients. Over the year, the division participated in the main shutdowns within the

petrochemical sector in Spain. Its chemical cleaning services and the “turnkey” projects for centrifuge plants and reservoir cleanings have all experienced significant growth. In addition, the division has begun to expand internationally, which will allow it to capitalize on the experience obtained from local projects.

### Plastics

Befesa Plastics manufactures special pellets of low density polyethylene by recycling the film used as covering for greenhouses. The resulting pellets are intended for a range of different applications, such as the manufacture of films for the construction industry (water-proofing and protections), sacks and bags, irrigation pipes and electrical and telecommunications ducts. It can also be injected to create pots and vessels and used to obtain modified asphalts. As Befesa Plastics is the only company capable of carrying out the complete recycling cycle, ranging from collection to the manufacture of the product, it stands at the forefront of the European market.

During 2008, Befesa recycled 13,653 t of film and used irrigation pipes, and produced 10,240 t of polyethylene pellets, thereby consolidating its position as market leader within the low density polyethylene recycling industry, where it operates in all the major areas of cultivation under plastic in Spain: Alicante, Murcia, Andalucía and Extremadura.

### PCB

Befesa Gestión de PCB, located in Cartagena (Spain) is an expert in providing effective solutions for the collection, transportation and elimination of transformers, condensers and materials contaminated with PCB. Using cutting-edge technology, the company is able to recover all reusable materials while eliminating all contaminated material for good.

More than 4,200 t of PCB-contaminated apparatus and materials were processed over 2008, representing a year-on-year increase of 15% and helping the company to maintain its position of leadership in Spain within this market. Due to these impressive figures, Befesa Gestión de PCB has become the benchmark company for PCB treatment in the electrical sector, with clients such as Iberdrola, Endesa and HC Energía, to name but a few.

### Soil decontamination

This Division offers integral technical solutions to the problem of soil contamination. Over the course of the year, the company has rolled out numerous investigation and diagnostic projects into contaminated soil for blue ribbon clients within the petrochemicals, steel, real estate construction, energy and chemical industries, among others, as well as different soil decontamination initiatives, such as bioremediation treatments, on-site treatments, excavation and management.

The firm treated over 100,000 m<sup>3</sup> of contaminated soil over 2008. Worthy of particular note is the work carried out for EDP at the Sines thermoelectric plant (Portugal), for Repsol YPF Cartagena (Murcia), for Fertiberia, the former installations in the Escombreras Valley (Murcia), and the Algeciras thermoelectric plant (Andalucía) owned by Enel Viesgo. These initiatives have enabled the company to recover the soil for other uses, thereby helping to improve the local environment.

### Desulfurization

Befesa Desulfuración produces sulfuric acid and oleum (a compound rich in SO<sub>3</sub>) from the residual sulfur recovered from petrochemical plants. The company owns a plant that enables it to overcome the environmental problems associated with oil plants by applying the cleanest and safest processes.



During 2008, 285,720 t of equivalent acid were produced, with a corresponding generation of 69,612 MWh of electricity, which, after deducting self-consumption, has led to sales of 43,962 MWh of surplus electricity.

It's worth noting that in May, the land on which this desulfurization plant is located was sold against the backdrop of the Sefanitro Special Interior Reform Plan (Plan Especial de Reforma Interior Sefanitro) of the town of Baracaldo (Biscay). The plant is currently operating and the land will be turned over within a term that will guarantee the transfer of the activity to the new location.

In terms of sheer volume treated under the heading of industrial waste management, Befesa leads the way not only in Spain, but also in those Latin American countries in which it operates (Argentina, Chile, Mexico and Peru).

Befesa's main competitive edge lies in the fact that it is present throughout the entire industrial waste management cycle. This allows it to create important synergies between the different links in the chain.

Befesa has centers and offices distributed throughout Spain in order to offer its clients an integral waste management service, while minimizing and reducing any possible environmental impact with suitable management techniques.

Befesa's strategy for growth in the field of industrial waste management is based on achieving organic growth in the management of non-hazardous waste in the countries in which it operates, as well as on penetrating into new and highly promising territories.

The industrial waste recycling market will continue to grow, spurred on by ever-increasing legislative and environmental pressure not only on producer companies, but also on required treatments and processing. Befesa's competition in industrial waste management comprises small and medium-sized companies with a strong local presence, as well as the environmental divisions of large industrial companies generally associated with the construction sector.

Water

Befesa Agua specializes in the generation, transportation and management of water by designing, constructing and operating infrastructures to ensure an integral water cycle, and also by developing technologies capable of providing innovative and sustainable solutions.

Throughout 2008, Befesa Agua continued to expand on the international stage by constructing desalination plants and carrying out water treatment, transportation and distribution, thereby helping to promote the notion of sustainable development. To achieve this, it has established itself as a local company in China, India and the United States and has opened commercial offices and branches in the Persian Gulf and Australia. Lastly, Befesa has

consolidated and homogenized its presence throughout Spain by participating in the national plans and programs currently underway.

Listed below are the most relevant milestones for 2008.

- Contract awarded for the Tenes desalination plant (Algeria). The Algerian Energy Company (AEC), an Algerian state-owned company, has awarded Befesa a project to design, construct, finance and operate the seawater desalination plant at Tenes (Chlef) for 25 years. The investment exceeds \$232 M and total revenue from water sales will represent more than \$1,400 M. The desalination plant will have a water production capacity of 200,000 m<sup>3</sup>/day, enabling it to supply a population of 800,000 people through the use of reverse osmosis technology.
- Contract awarded for the Baix Llobregat water desalination and treatment plant (Barcelona, Spain). Depurbaix has entrusted Befesa, under a joint venture with ACSA, to draw up the plans and carry out the construction work on the water desalination and treatment plant for part of the effluent processed at the Baix Llobregat waste water treatment plant, entailing an investment of over 13 M€ . The plant will produce 57,024 m<sup>3</sup>/day of water through the EDR system (electrodialysis reversal) and is set to become the world's largest waste water reuse installation of its kind and the second largest EDR with any type of water.
- Contract awarded to modernize the WWTP at Jerez de la Frontera (Cádiz, Spain). Empresa Gestión Medioambiental, S.A (Egmasa) has awarded Befesa a contract to execute expansion and modernization work on the Waste Water Treatment Plant (WWTP) at Jerez de la Frontera for a grand total of more than 9 M€ . The project will benefit a population of 525,000 equivalent inhabitants and will boast an average volume of 70,000 m<sup>3</sup>/day.
- Contract awarded for the Sar river catchment system in Santiago de Compostela (A Coruña, Spain). The Ministry of the Environment and Rural and Marine Affairs, acting through the Directorate-General for Water, has awarded Befesa a contract to start construction on the general interceptor sewer for the stretch of the river Sar between Pontepedriña and the Silvouta treatment plant, representing an investment of over 20 M€ . The project will remodel the current sewer and stormwater control system for the drainage basins that empty into the river Sar, and will likewise incorporate existing direct dumpings into the network of secondary sewers.
- Water management and hydraulic infrastructures (Spain). During 2008, Befesa Water has managed to strengthen its presence in this field. In addition to the construction work currently underway on the Automatic Hydrological Information System (known in Spanish as the Sistema Automático de Información Hidrológica, or SAIH) for the Duero river and the maintenance and expansion work on the Guadalquivir SAIH, the company has also been awarded a contract to maintain, modernize and operate the SAIH for the Andalusian





Mediterranean Basin under a joint venture with Telvent and Page Ibérica, in addition to a remote control agreement for the gauging points of the Ebro Basin.

- Completion of the Skikda desalination plant and commencement of the operating period (Algeria), with the first water production taking place during the last quarter of 2008. The AEC awarded the contract to the Geida consortium of Spanish companies, to which Befesa Agua belongs along with Sadyt. The plant will have a capacity to desalinate 100,000 m<sup>3</sup>/day of water and will supply a population of 500,000 inhabitants by means of reverse osmosis technology. The contract encompasses the possession, exploitation and maintenance of the plant for an initial term of 25 years.
- Completion of the civil engineering work on the Chennai desalination plant (India). During 2008, civil engineering work was completed on the Minjur seawater desalination plant in Chennai. Tamil Nadu province (India). The plant, which was awarded to Befesa by the Chennai Metropolitan Water Supply and Sewerage Board (CMWSSB), will produce 100,000 m<sup>3</sup>/day of drinking water to supply the city using reverse osmosis technology. The contract encompasses the design, financing, construction, possession, operation and maintenance of the installations for an initial term of 25 years, with final commissioning expected to take place in 2009.
- Contract awarded to construct the main pipeline which will connect the branch sections of Sant Celoni and Hostalric (Barcelona, Spain). Aguas del Ter de Llobregat, a public company attached to the Generalitat de Catalunya, has entrusted Befesa, under a joint venture with ACSA, with the task of constructing the mains pipeline to join the Sant Celoni and Hostalric branch sections in the province of Barcelona, for a grand total in excess of 26 M€ . The contract includes the section of pipeline to connect the branch pipeline planned for the town of San Celoni (located in the Catalonian region of Vallés Oriental) with the towns of Hostalric and Sant Feliu de Buixalleu (in the region of La Selva).
- 2008 also saw the company commence construction on major projects awarded in previous periods, such as

the Bajo Almanzora desalination plant (Almería, Spain), which employs technology based on reverse osmosis and which will have a capacity to supply up to 20 hm<sup>3</sup>/year of water; the WWTP in El Campello (Alicante, Spain); the Cenajo drinking water treatment station (DWTS) (Murcia, Spain), which will benefit a population of more than 700,000 inhabitants; and the concession of the irrigation area of the Navarre Canal, Phase One (Navarre, Spain).

- The company also completed a number of other important milestones, such as the modernization of the Sur-Andévalo irrigation area (Huelva, Spain), the seawater catchment work in Jorf Lasfar (Morocco) and the plant at of the Itoiz dam (Navarre, Spain).

During 2008, Befesa acquired a 51% stake in the U.S. water plant engineering and construction companies NRS Consulting Engineers and Water Build. It also acquired a 50% holding in the company Micronet Porous Fiber, S.L., which specializes in the manufacture of hollow porous fiber. The acquisition will enable the R&D&i Department to enhance its technological capacity for this type of material when used in water treatment processes.

Befesa Agua continues to manage municipal services in Spain through its equity holding in Agua y Gestión, providing supply and sewerage services on the Spanish market for more than 200,000 inhabitants.

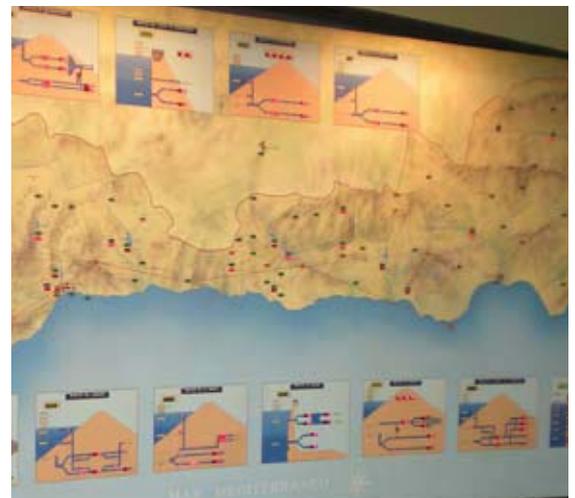
On a final note, Befesa Agua continues to process purine through Procesos Ecológicos Vilches, S.A., a company which owns a treatment plant located in the town of Vilches within the province of Jaén. The plant treated 75,250 m<sup>3</sup> of purine over 2008.

The water generation and transportation market, and particularly the worldwide desalination market, are all currently experiencing significant growth, largely due to two important global events: the increase in the world's population coupled with limited water resources.

Befesa is a market leader in water desalination within Spain and is also one of the most prominent figures on the international stage.

For years now, Befesa has stood at the forefront of seawater desalination plant technology and engineering by investing heavily in R&D&i programs, which have afforded the company the premier status it enjoys today.

Befesa's strategy for continued growth within the desalination market involves organic growth in the main regions



and markets in which it operates (mainly China, the United States, India and Algeria), whilst also tapping into previously unexplored markets.

The leading competitors of Befesa in the water sector are primarily large international companies that form part of major industrial groups.

The regulatory framework within Spain consists of a series of plans, such as the A.G.U.A. program, the Reuse Plan and the National Water Quality Plan, all of which regulate the actions to be carried out in the years to come. We would also highlight the approval of Royal Decree 1620, dated 7<sup>th</sup> December 2007, which enacted the legal system governing the reuse of treated water.

At present, between 400 and 450 hm<sup>3</sup> of 3,400 hm<sup>3</sup> of purified water are reused. Following the initiatives that the Ministry of the Environment and Rural and Marine Environments intends to roll out, this amount will be tripled by the year 2015, when 1,200 hm<sup>3</sup> will be reused, a figure which will really open up the market. In accordance with the goals of the A.G.U.A. Program (Actuaciones para la Gestión y la Utilización del Agua) unveiled by the Ministry of the Environment and Rural and Marine Affairs, this Decree has laid the foundations for a new water policy based on a more modern and efficient management of resources.

**Latin America**

**Befesa Argentina**

Befesa Argentina is involved in the handling, transportation, recycling, recovery, processing, incineration and final disposal at secure waste storage facilities of non-hazardous industrial waste and special or hazardous waste. It also provides the oil industry with cleanup services. These environmental management services are carried out under the strictest international environmental standards through the use of state-of-the-art technology, combining experience, technology and responsible handling of resources. The company is therefore able to promote sustainable industrial development by offering a suitable treatment for each type of waste. In order to attain this goal, the company has two plants: Campana, which provides inertization and final disposal services, and Pacheco, which serves as an incineration plant. Both facilities have undergone improvements to their infrastructure in order to increase their operational capacity and the quality of their services.





During 2008, the company has provided integral waste management services to the pharmaceutical, chemical, automobile and oil industries, where it operates centrifuges that work 24 hours a day, 365 days a year. It also offers refineries cleanup, treatment and sludge suitability services.

### **Befesa Chile**

Befesa Chile, through its company Soluciones Ambientales del Norte, is involved in the integral management of solid hazardous and non-hazardous industrial waste, through temporary storage and final disposal systems. The company provides treatments to valorize and minimize the hazardous nature of the waste, giving priority to recycling whenever possible. The waste, which is mainly produced from mining operations and industry, is managed in a safe and responsible manner, thereby contributing to the country's sustainable development.

In May 2008, Chile's regional health authority granted Soluciones Ambientales del Norte the start-up license for its hazardous and non-hazardous waste processing plant, which occupies a 40 ha site in the Atacama desert, 120 km inland from the city of Antofagasta and 1,600 km from the capital of Santiago. The plant commenced operations following the authorization and has already managed 5,000 t of waste, a figure which will increase over the years to come, along with the company's market share.

### **Befesa Peru**

Befesa Peru is primarily involved in rendering integral environmental services to industry, including the collection, transportation, processing and final disposal of industrial and hazardous waste; the environmental management of industrial installations; the recycling of metallic containers and the exporting of PCB. These activities are

carried out by means of tried and tested techniques pursuant to national and international regulations that guarantee the utmost respect for the environment. Through the use of cutting-edge technology, the company



helps to protect both the environment and public health by ensuring the waste is kept in strict isolation and removing any trace of risk from the equation by monitoring risk during processing and following the sealing of the waste.

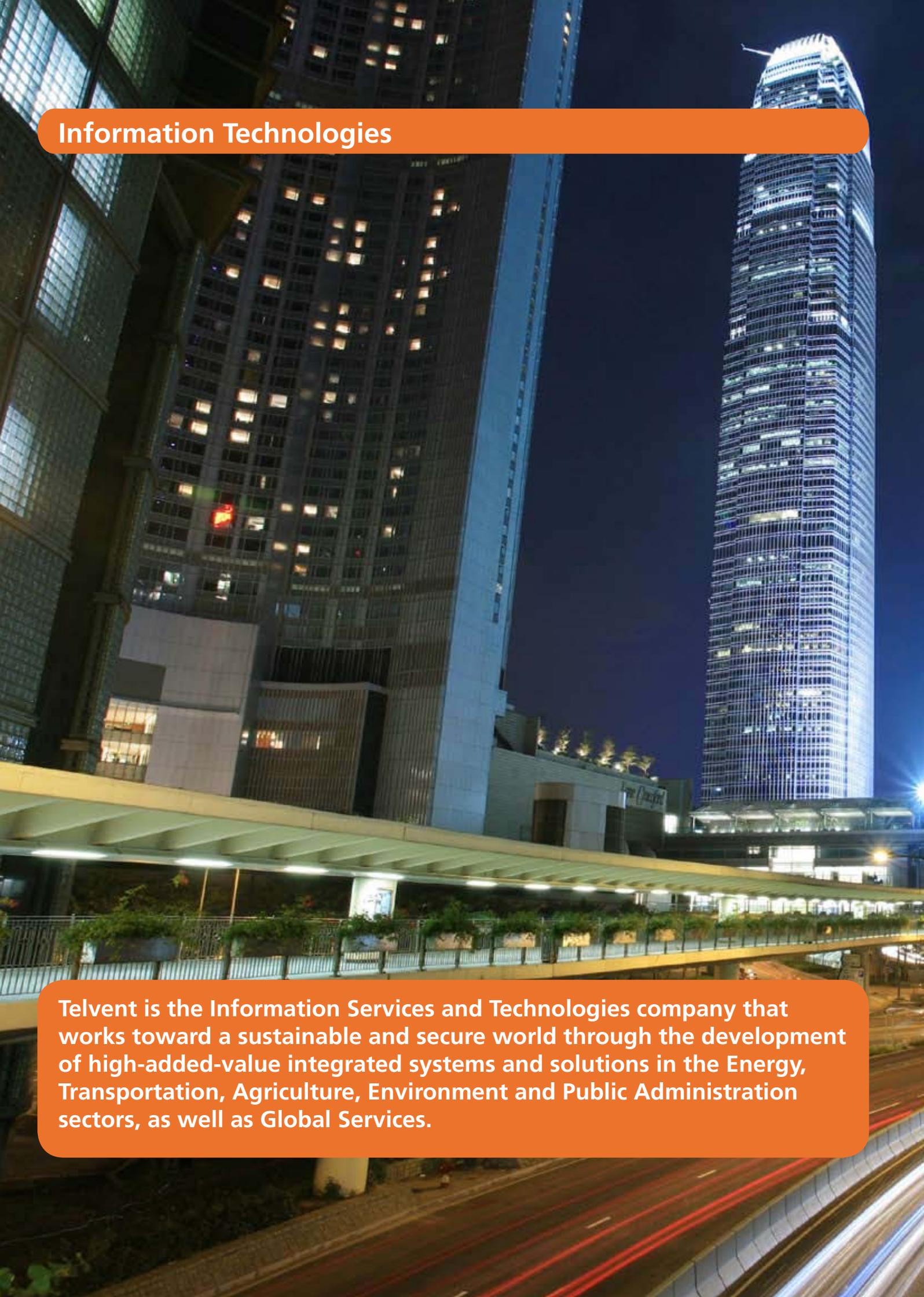
Befesa is the first and only company in Peru authorized by the Directorate-General for Environmental Health (in Spanish, DIGESA), attached to the Ministry of Health, to carry out the treatment and final disposal of hazardous industrial waste, and it also enjoys the approval of the Environmental Impact Study. The company managed over 17,000 t of waste during 2008 and also started up its industrial cleanup service.

**Befesa Mexico**

Befesa Mexico and its subsidiary, Sistemas de Desarrollo Sustentable (SDS), are involved in the management, processing and final disposal of hazardous industrial waste. Their activities help to foster sustainable development in two ways: on one hand, they offer the attractive option of managing hazardous waste

responsibly, which would otherwise lead to significant environmental contamination, and on the other, the SDS center is located less than 200 km from the area responsible for creating the greatest amount of hazardous waste in Mexico, meaning the waste producers save more than 800 km of waste transportation costs, which in turn entails a significant reduction in CO<sub>2</sub> emissions.

2008 witnessed completion of the SDA hazardous waste disposal center, located in the State of Hidalgo, which has now become fully operational. The center will be able to process more than 500,000 t during its first phase. The next projects on the horizon will be remediation and industrial cleanup services focusing on the oil industry.

A nighttime photograph of a city skyline. In the foreground, a modern pedestrian bridge with a glass railing and integrated lighting spans across the frame. Below the bridge, a multi-lane highway shows light trails from moving vehicles. In the background, several tall skyscrapers are illuminated. The most prominent one on the right is a very tall, slender tower with a distinctive top section, likely the One World Trade Center. Other buildings to the left have many lit windows, creating a grid of light. The sky is dark blue, suggesting twilight or night.

## Information Technologies

**Telvent is the Information Services and Technologies company that works toward a sustainable and secure world through the development of high-added-value integrated systems and solutions in the Energy, Transportation, Agriculture, Environment and Public Administration sectors, as well as Global Services.**

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



International Presence





### Our business

Telvent's mission is to help ensure the efficient, secure and comprehensive management of the operating and business processes of the world's leading companies. Telvent works tirelessly day by day to be the global company that attracts the very best professionals in each country. These people, through the use of the latest information technologies, together with their customers, help us to overcome the formidable challenge of creating a sustainable and secure world for future generations.

True to its commitment to sustainable development and security, Telvent offers a raft of solutions that pave the way for sustainable and secure management focused on the different business areas, which are divided into the following segments:

- Transportation: management of road (urban and interurban mobility), railway and maritime transportation infrastructures with the aim of heightening security and reducing contaminating emissions by promoting public transportation and improved mobility.
- Energy: advanced applications used in each and every industrial sector to provide solutions to optimize the use and blending of our planet's natural resources, minimizing the impact on the environment of activities associated with the supply of energy.
- Agriculture: real-time, high-value proprietary information for farmers, intermediaries and traders on

commodity prices, highly accurate weather forecasting, as well as a range of other specific content representing an industry benchmark. Through the trading platform (Grain Trading Portal), Telvent brings buyers and sellers together, facilitating interaction and commercial transactions between the two.

- Environment: added-value technological solutions and services that aid in adapting and mitigating the effects of climate change on both the population and biodiversity, and favor sustainability.
- Public Administration: innovation applied to solutions and services with significant social value in areas such as healthcare, administration and security, enhancing quality of life, facilitating management, improving environmental conditions and enhancing the ability of citizens, civil servants, businesses and institutions to access new technologies.
- Global Services: services spanning the entire technology life cycle, for application by customers in their businesses and which enable optimization of resources. Telvent thus contributes to the sustainability of our planet by hosting technological platforms in specialized and redundant data centers.

Guided by the company’s core values, each of Telvent’s business areas is able to meet any challenges facing them, examples of which are the following:

- Promoting the use of public transportation and optimizing urban traffic flow management by fostering the creation of sustainable urban environments.
- Developing comprehensive innovative solutions for highway management with the aim of increasing road safety and reducing polluting emissions.
- Strengthening safety in controlling infrastructures and railway traffic.
- Providing maritime authorities and operators with comprehensive port management solutions that enable them to heighten the security of their facilities.
- Optimizing delivery and monitoring of the electrical power supply.
- Lowering costs and improving customer service for energy and wastewater companies.
- Providing the capacity to determine the energy and cost of operating an energy network at a given time.
- Ensuring the coordination and security of electrical power facilities through the use of remote control systems that enhance efficiency and maintenance of catenary systems.
- Providing valuable reference information to ensure that farmers and other associated agents are able to make effective decisions in an environment characterized by extreme volatility and economic and geopolitical complexity, where agriculture maintains critical importance in the worldwide development of biofuels and



the food supply. Both are key elements in the quest for a more sustainable world and in the macroeconomic evolution of most economies.

- Increasing efficiency and security under adverse weather conditions for road, railway and air transportation.
- Monitoring air quality in order to prevent any potentially negative impact on health in cities and industrial areas.
- Optimizing operational costs through improved water resource management and process efficiency by applying quality standards.
- Providing a comprehensive solution to manage all aspects of immigration, with the ultimate aim of achieving full integration of immigrants in their host countries.
- Effective interaction among administrations, regardless of their territory, size and citizenship.
- Ensuring data security and protection for every hospitalized patient.
- Providing consulting solutions, on both business and technological level.
- Integrating communications and networks through the best interconnection centers and communication technologies available.
- Providing outsourcing and management solutions for all customer information systems and business processes.

## 2008 in review

In accordance with the underlying principles of sustainability and security that drive Telvent forward, and as a product of its ongoing desire for growth and expansion, the year 2008 saw Telvent successfully enter new markets in new geographical areas, while consolidating other existing markets, where the image and quality of the solutions Telvent delivers have been clearly demonstrated year after year.

In areas such as Transportation or Environment, expansion toward markets such as Asia-Pacific and the Middle East have helped to increase global sustainability and security, as a product of, for instance, urban traffic management and water supply control applications, thereby achieving considerable improvement in the quality of life of the people who live in these regions.

Consolidation in other geographical areas, such as North America and Latin America, have also reinforced the Telvent image, while simultaneously underscoring the company's position of leadership in these markets.

Furthermore, in line with Telvent's strategy of complementing organic growth with acquisitions that add value in the short and long term, the acquisition of the U.S. company DTN Holding Company, Inc., specializing in exclusive high-added-value information services for business decision-making processes within the agriculture, energy and environmental markets, strengthens Telvent's presence in the United States in the energy and environmental sectors while adding a new market, agriculture, which is of paramount importance as part of the company's vision of helping to build a more sustainable world.

In a similar vein, the consolidation of the consultancy firm Matchmind, in which Telvent acquired a majority holding in October 2007, has added further overall weight to its global range of solutions and services, thereby helping to push up Telvent's profits.



The positive annual performance of all of Telvent's business areas is reflected in the agreements and projects achieved, representing a prelude to a future that we are building each day: a future with the ability to maintain the balance of our planet by developing the Information Society and, hence, a secure future, a better future.

**Our Activities**

**Transportation**

True to its commitment to sustainability, security and the environment, Telvent offers its customers a raft of solutions enabling them to take the step towards sustainable and secure management of road, railway and maritime transportation infrastructures.

Guided by this principle, Telvent has developed more powerful and reliable technological platforms to help our customers reach their goals while strengthening their commitment to security and the environment in the following areas:

Urban Mobility

- With the aim of improving urban mobility and creating sustainable urban environments, Telvent offers management solutions that facilitate and encourage the use of public transportation by controlling and regulating city traffic.

Interurban Mobility

- Telvent delivers advanced solutions for managing highways, toll facilities, tunnels and interurban transportation to concessionaires and operators seeking to promote security and reduce contaminating emissions.



#### Railway

- Telvent provides a raft of advanced solutions aimed at reinforcing security when managing railway traffic and infrastructures, as well as facilitating user access to railway transportation, thereby promoting the use of public transportation.

#### Maritime

- Telvent delivers secure and reliable solutions for global port management, as well as a wide range of simulators for enhancing the training required by maritime operators in order to run high-security-level ports.

#### Main projects:

1. New York Metropolitan Transportation Authority Bridges and Tunnels (MTA Bridges & Tunnels), in the United States. Maintenance of the E-ZPass electronic toll system. The contract includes upgrading, updating and maintenance of the E-ZPass electronic toll systems deployed for the seven bridges and two tunnels managed by MTA B&T, featuring electronic (E-ZPass) and manual tollways. To this end, Telvent will implement its ROMS system, an application enabling the client to telemonitor the running and maintenance of the system it wishes to control, thereby enhancing the quality of the maintenance and operation services and increasing the availability of the MTA B&T electronic toll system. Contract amount: 21.1 M€ .
2. University of Maryland, in the United States. Supply of program management services, technical support and administrative services for the "I-95 Corridor Coalition". The coalition is an association of State Transportation Departments, Local and Regional Transportation Agencies, Toll Authorities and other organizations such as Enforcement Agencies and East Coast Public, Rail and Port Transportation Authorities, from the state of Maine to Florida. Contract amount: 12.6 M€ over five years (extension option twice in three years).
3. Institute for Energy Diversification and Savings (IDAE), in Spain. Development of the stoplight energy savings project. This contract was awarded to the temporary joint venture made up of Telvent-SICE-ETRA. The project involves replacing conventional light bulbs in 100,000 stoplights in 584 municipalities in Spain with LED lighting technology, with the aim of lowering current electrical consumption. Contract amount: 10.6 M€ .

4. OHL Brasil, in Brazil. Supply, installation and start-up of the toll management system for three highways belonging to OHL Brasil’s federal concessionaire highway network. The project involves supply and installation of 19 toll stations, three control centers, 348 tollways, of which 80 are teletoll-based, the communications network and the CCTV video surveillance system. The entire toll system will be managed using Telvent’s SmartTOLL solution. Contract amount: 8.2 M€ .
5. Spanish General Traffic Department (DGT), in Spain. Installation of ITS equipment and systems for managing and controlling traffic on the AP-9 highway, and connection with the northwest traffic control center. Contract amount: 8.5 M€ .
6. Metro Valencia, in Venezuela. Supply, installation and start-up of a complete management system for subway Line 2 and expansion of the Line 1 centralized station control system and closed-circuit television system. Contract amount: 96 M€ .
7. Pennsylvania Department of Transportation, in the United States. Implementation of the new Pennsylvania 511 system. This contract involves implementation of a new traveler information system, 511, which will afford users web and telephone access to all information regarding travel times, traffic conditions, public transportation fares, routes and schedules, as well as weather information.
8. Xinxiang, in China. Start-up of an urban traffic control system in the city made up of local regulators (RMY) for handling real-time data collection at each intersection, and area stations (CMY) to receive data from the local regulators for subsequent ordering and transmission to the control center. In developing this project, Telvent will make use of diverse innovative systems, noteworthy among which are the traffic signal control system, the electronic police system, the integrated assistance system, and the Geographical Information System (GIS). Their integration will enable smoother traffic flow in this Chinese city, as well as added security and convenience for all of its citizens.
9. Barcelona City Council. Centralization, replacement and updating of stoplight intersections in the city of Barcelona for years 2008, 2009 and 2010. This project involves updating as many as 445 existing stoplight intersections in the city of Barcelona.

Telvent holds a competitive market position in ICT solutions for the Traffic and Transportation segments. It is a leading company in Spain, the United States, Argentina, Panama, Brazil and Venezuela. In these countries our market share exceeds 25% in the market segments listed below.

Market segments	Market Share 2008
Road traffic control in Spain	35%
Road traffic control in Argentina, Panama and Brazil	30%
Interurban traffic control in Spain	35%
Enforcement Spain	50%
Toll systems and equipment in Spain	40%
Toll systems and equipment in Brazil	25%
Railway ticketing in Spain	40%
Railway ticketing in Venezuela	25%
511 Traffic information Systems in the United States	32%





The Traffic segment features a high number of competing companies. In comparison, Telvent has a significant competitive edge, given that its traffic control system is adaptative, a feature that our competitors' systems do not possess, with the exception of Siemens and Peek. In Enforcement, competition is limited to two companies. In this case, Telvent's competitive advantage is based on the company's expertise, in both traffic control system integration as well as enforcement integration systems.

In the Traffic segment, Telvent's chief competitors are divided into two groups, depending on the business offered. Among the integrators, Indra and Sice stand out as competitors in the Latin American and Spanish market, and Kapsch and QFree are noteworthy as being the main competitors in electronic toll-based solutions.

In comparison, Telvent's main advantage lies in its ability to offer concessionaires and toll authorities a global solution. This solution goes from the top level or back office, thereby enabling management of the end user and the concessionaire, to the bottom level or field equipment, with an emphasis on the teletoll equipment for channeled Free Flow systems.

In the case of Ticketing, there are several companies that compete with Telvent, both in the national and international market. However, Telvent has the features that differentiate it from the competition. Among these competitive advantages, we must point out the fact that the company supplies global solutions for urban mobility and public transportation, so its systems can be easily integrated into broader projects. Moreover, Telvent's solutions provide comprehensive, end-to-end management, and can be divided into specific services: supply, start-up, maintenance and consulting. In addition to the advantages already mentioned, let's not forget that Telvent has an active presence in virtually all spanish ticketing systems, with proven expertise in integration with external systems and in product adaptation and customization, as well as an extensive maintenance network. All of this means Telvent can offer its customers a list of international references.

In relation to Parking systems, it's fair to say that the market is wide open and features a large number of competing companies, both nationally and internationally. Telvent's capability in customizing and adapting the product functionally, its experience and capability in integration with other systems, and the fact that it is involved in most spanish ticketing systems (especially important for Park & Ride facility integration), together with its nationwide maintenance service network and extensive portfolio of references and success stories, all stand Telvent in good stead for facing a competitive market segment.

Railway and maritime transportation are also highly competitive segments with many companies working in them. In the case of railway transportation, Telvent enjoys a solid reputation and offers products that have already been

consolidated. Furthermore, its development team is highly qualified and has a great deal of expertise in these matters. As to maritime transportation, the company is able to offer significant international presence and VTS development. Both characteristics afford Telvent a competitive edge, given that many of its competitors are present worldwide at the commercial level only, without offering VTS and Fishing Control Center solutions at the same time.

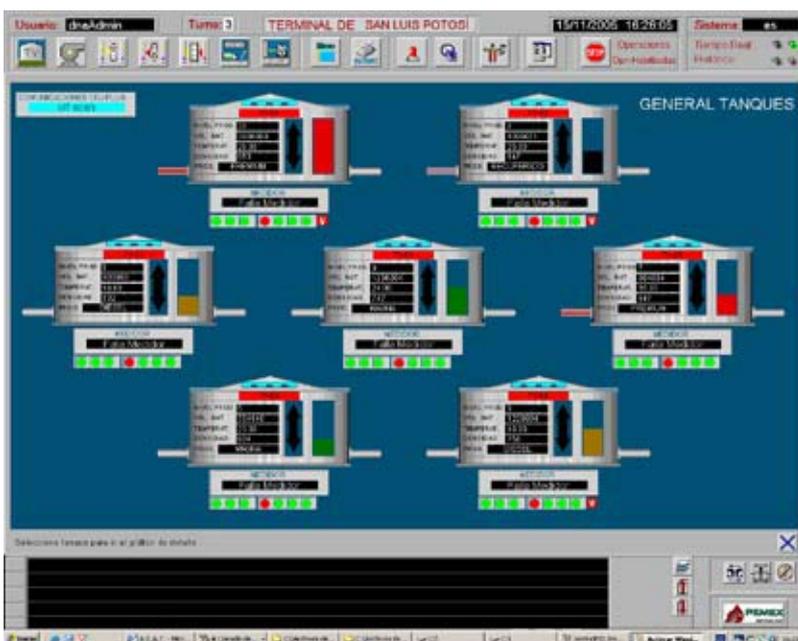
Energy

Telvent’s Energy business area is committed to developing and supplying solutions for the oil and gas sectors, for electric companies and enterprise GIS sectors, in keeping with Telvent GIT’s global vision of providing information technologies for a secure and sustainable world.

Telvent Energy’s advanced SCADA systems (OASyS) and the enterprise GIS suite (ArcFM), coupled with industry-leading application, product and service packages, make up Telvent’s impressive suite of solutions for the energy sector. These solutions have proven their ability to optimize business functionality and profitability, as well as enable efficient and secure operations for energy operations throughout the world. Telvent complements these advanced infrastructure solutions with its expertise in state-of-the-art integration, project management and IT services.

Telvent’s Energy business area is unique in that it delivers a complete set of real-time solutions that encompass input of raw field data, localized control and unit operations, as well as complex business decision-making and resource planning at the global business level. No other company, apart from Telvent, delivers the kind of information needed for business decisions in which time is the critical factor, while covering such a broad spectrum of energy supply. Telvent’s extensive experience and knowledge of practical applications differentiates the company from its competitors, and speaks volumes for its current market position as a company that fulfills its commitment to optimized efficiency in the energy sector.

Enhanced alarm management in SCADA systems was ushered in by the Pipeline Safety Improvement Act of 2006, in U.S.A. which confirms that the Department of Transportation, acting through the National Transportation Safety Board, is to issue the regulations based on the RP 1167 of the American Petroleum Institute. Telvent was



a participant on this committee, having assured that its products are well positioned in order to meet these new requirements for alarm management.

Main projects:

1. Sinopec (China Petroleum & Chemical Corporation). China's second largest oil and gas operator and the corporation with the highest sales volume in 2007. Supply of the technological systems that will control the Sichuan-East China gas pipeline. The contract value exceeds 2.4 M€ .
2. Adif. Supply, installation and start-up of the energy supply control systems for the Madrid-Barcelona-Figueras line of the high-speed railway. The amount of the contract totaled 5.9 M€ .
3. Abu Dhabi Marine Operating Company (ADMA-OPCO). Installation of the supervisory control and data acquisition system (SCADA) for its control centers. This project is valued at over 18 M€ .
4. Abener. Supply of the power center Distribution Control System (DCS) for the solar plant in Ain Beni Mathar (Morocco). This affords Telvent access to a new geographical area.
5. Green Mountain Power (Vermont, U.S.). Planning and management of its power facilities through the ArcFM™ solution. This implementation includes ArcFM enterprise GIS, its Designer extension, the Responder Outage Management System (OMS), and ArcFM Viewer with the Redliner extension. GMP's objective is to substantially improve the functionality and work flows with respect to its current systems, using off-the-shelf components. The energy features of the ArcFM solution provide a platform for key improvements in the operational process. GMP anticipates a reduction in the amount of input and databases required to produce the engineering designs and record the information related to power outages.
6. Long Beach (California, U.S.). ArcFM™ solution to support development and maintenance of its spatial data for gas distribution. This organization now has the capacity to leverage a GIS solution delivering a more efficient way of maintaining and accessing pipeline and installation records. ArcFM has been deployed among office and field personnel and GIS is currently maintained in-house. This solution enables improved analyses, thereby contributing to the identification of conduit replacement, a component of the city's Capital Improvement Program (CIP).
7. U.S. Navy. Contract with Telvent Energy for the San Nicolas Island system. Williams Electric is the subcontractor for the supply of diesel generators and the control system for the power generation site on this island. This represents a significant step forward for the Navy, as the system demonstrates the concept of a distributed system throughout the region for other Navy facilities. This approach leverages the operations at the main site in San Diego as a cost-effective way of bringing automation to remote installations.
8. DTE Energy Company (Michigan, U.S.). Implementation of Designer, which includes integrated ArcFM™ tools for managing assets and facilities. This will help DTE to manage the design process for delivering gas and electrical service to its customers.

## Environment

Telvent is becoming an active player in the fight for sustainability, helping different businesses and public institutions to deal with social, environmental and economic constraints when juggling supply with demand from users. This ensures quality in the supply of drinkable water and fosters the proper use of emerging technology and services for responsible management of a very limited resource.

Telvent is also involved in weather observation, weather forecasting, monitoring and prevention of adverse atmospheric and hydrological phenomena and monitoring pollution by delivering real-time technology and added-value services.

2008 witnessed the consolidation of Telvent’s Environment business in highly relevant geographical areas such as Europe, Asia-Pacific, northern Africa and the Middle East. The business was also unveiled in countries such as Libya and Sweden, and the company’s aviation weather and hydrometeorology activity remained at the forefront of the Spanish market.



Main projects:

1. Great Man-Made River (GMMRA), in Libya. Development of Phase 4 (the Ghadames –Az Zawiyah – Zware phase) of the Libyan government’s blue-ribbon project, which is intended to supply water to the entire coast of Libya, thereby resolving problems associated with a lack of resources in the region. The project entrusted to Telvent is valued at 25.5 M€ and will be executed over a two-year period.
2. Andalusian Water Agency of the Department for the Environment attached to the Regional Government of Andalusia, in Spain. Hidrosur Network operation and maintenance services. This contract will be executed by Telvent under a temporary joint venture with Befesa Aguas and Page Ibérica, with each company holding an equal share of 33.3% (3.3 M€).
3. Department for the Environment of the Regional Government of Andalusia, in Spain. Renewal of the maintenance contract for the Andalusian Environmental Monitoring and Control Network. Through this contract, Telvent will be in charge of maintaining and operating more than 200 environmental quality measurement points, including private networks attached to the Andalusian Administration and the Control Center (2.7 M€).
4. Swedish Defense Administration, FMV, in Sweden. Design, supply and maintenance of the new meteorological observation system (METOS) for the Swedish Air Force. This system will provide up-to-date, real-time information on weather conditions. The main objective of this project is to replace the existing weather

- observation system (hardware and software) using proven and secure technology. The key feature of Telvent's METOS system is that it can be run and maintained as a fully networked meteorological system providing enhanced security and support in data acquisition, processing and display, as well as in report generation and distribution (1.6 M€).
5. Australian Bureau of Meteorology, BOM, in Australia. Supply of the new generation of automatic weather stations. This involves an extension of the current contract due to the fact that the parties have needed to broaden the scope since the initial design phase with respect to that which was originally presented last year (1.4 M€).
  6. Ministry for the Environment and Rural and Marine Affairs, National Water Department, in Valladolid. Execution of the preliminary project plans for Lock 42 of the Canal de Castilla in Valladolid. These are essentially the preliminary plans for the tender to draw up project plans and remodel the main building, restructure the entire plot, and construct a new warehouse, garage, laboratory and ancillary facilities for the basin control center at Lock 42 of the Canal de Castilla in Valladolid (1.8 M€ under a temporary joint venture with stakeholding as follows: 30% Telvent, 30% Befesa, 40% Ferrovial).
  7. Bosnian Civil Aviation Authorities, in Bosnia. Supply and installation of aviation systems at four Bosnian airports: Sarajevo, Tuzla, Banja Luka and Mostar. Supply also includes AWOS (Automatic Weather Observation Systems), RVRs (Runway Visual Range Transmissometers), a telecommunications system, message center, data interpretation and processing system, weather data distribution system via satellite. SADIS 2G and VOLMET (0.9 M€).
  8. State Meteorology Agency (AEMET), in Spain. Maintenance service on the airport and airbase weather observation systems. This involves delivering services to the National Institute of Meteorology for corrective maintenance of the aviation weather systems installed at airports and airbases (2.4 M€).
  9. Venhemet, in Venezuela. Extension of the "Airport Observation System" contract signed with the aim of including meteorological optic instrumentation manufactured entirely by Telvent. The sensors to be installed will be three Cirrus 100s and three Revolver RVRs. This contract is strategic in that it enables Telvent to maintain its position in Venezuela, with the added benefit of introducing Telvent-developed sensors, such as the Cirrus 100 and the Revolver, into the country, which will give us points of reference for these sensors in Latin America (0.3 M€).

In terms of market competition, it is important to point out that in the water utilities sector, both distribution and treatment companies alike are immersed in a process of adapting to new proposals for business and added-value services. They are also subject to ever-increasing levels of regulation. It is likely that these issues will continue to be driving forces for growth in this sector in control and optimization solutions in the coming years, as it is imperative that the management of these companies be as efficient as possible in order to generate the revenue needed to take on future investments and make better use of a resource as scarce as water. Other critical issues for Telvent clients include the security of assets; quality, of both the supply and the water distributed; and corporate social responsibility.

To address this, Telvent Environment has decided to take decisive steps in its commitment to developing solutions which, based on the cornerstones of quality and security, deliver value in the efficient management of demand, optimization of energy consumption, leak management and water quality.



In 2008, Telvent Environment made tremendous progress in the area of hydrometeorology, managing to consolidate itself in four of the most important hydrographical confederations in Spain. In addition, it continues to provide coverage and meteorological solutions that help to enhance security during critical take-off and landing operations at civil and military airports. The company has also decided to launch highly competitive new products on the market, such as Telvent’s ceilometer, which enables measurement of cloud substrates at different altitudes.

The environmental observation-based market is highly atomized. Some sectors, such as weather forecasting, are showing high growth, whereas others, such as aviation meteorology, are more mature, and what marks competitors apart is their ability to provide added-value services and applications. Within this line of activity, we must underscore the company’s recent acquisition of DTN, a U.S. information services provider, thereby strengthening Telvent Environment’s presence in the United States, specifically in the meteorology sector, adding value to Telvent’s solutions and ensuring a leading position in the growing information services sector. With this acquisition, Telvent moves one step further ahead of the pack due to its highly competitive capabilities in weather observation and forecasting, which the competition will be hard-pressed to outdo.

**Public Administration**

Telvent’s Public Administration division is dedicated to optimizing governmental, regional and local management on a global level. To this end, it offers information technology and communication services and solutions that provide an integrated response to today’s social challenges of security and sustainability applied to specific public sector areas.

Through its Government division, Telvent offers comprehensive and integrated solutions and services for enabling any administrative body in any area to take the technological leap from traditional administration to e-Administration, enhancing the administration’s own functioning while improving the well-being and comfort of the public.

Telvent responds to the technological demands of the Healthcare sector with a wide range of products and solutions, enabling global management of healthcare processes and full technological integration as demanded.



The security division develops its own high-value technology, which, together with its ongoing R&D strategy and its extensive knowledge of the market and its agents, enables it to provide efficient, functional and reliable responses to all public entities that safeguard citizens' security.

Main projects:

1. Virgen del Rocío University Hospital, in Spain. Supply and implementation of an integrated diagnostic imaging system. The scope of the project involves information technology and communications services enabling coverage of all phases in the medical imaging management process, ranging from their initial attainment, filing and storage, to final display for healthcare professionals.
2. Andalusian Health Service (SAS), in Spain. Development and implementation of its corporate information system for specialized care throughout the entire hospital network, within the framework of the Diraya Project, as well as corrective and evolutionary maintenance of the Telvent information systems deployed in the SAS hospital network. These systems are used each day by more than 40,000 healthcare professionals.
3. ÁBREGO Project for the Castilla La Mancha Health Service (Sescam) in Spain. Modernization and expansion of existing information systems and infrastructures of the primary healthcare facilities in Castile-La Mancha, totaling 883 healthcare facilities divided into 190 healthcare centers and 693 local clinics distributed throughout the region, with the objective of offering better service to the citizens of this community.
4. United Nations Office for Project Services (UNOPS). Development and implementation, in the Social Security system of Peru (EsSalud), of a Geographical Information System to provide support in planning healthcare service supply and forecasted demand.
5. Provincia Bética de la Orden Hospitalaria de los Hermanos de San Juan de Dios (regional healthcare authority), in Spain. Outsourcing services for its information systems over a 36-month period. Project scope covers hosting the customer's main technological platform at our Seville-1 center, and the back-up system at the Madrid-2 center.
6. Department for Innovation, Science and Enterprise, in Spain. Development and implementation of the new unified corporate platform of the Andalusian Regional Government for IT Service Management: NAOS (Andalusian Service Operation Node). Through this platform, the Andalusian Regional Government will enjoy an ITIL-based solution primarily geared towards integral ICT service management.

- 7. Council of the Province of Valladolid, in Spain. Implementation of Electronic Administration throughout the municipalities of the province. The aim is to ensure municipality compliance with Law 11/2007, governing Citizens' Electronic Access to Public Services (LAECSP).
- 8. Andalusian Health Service (SAS), in Spain. Expansion of the adaptation and improvement work on the installations of the SAS sites that house the back-up infrastructure for its centralized information services. This contract expansion covers electrical and communications adaptation, climatization and material supply for on-site use.

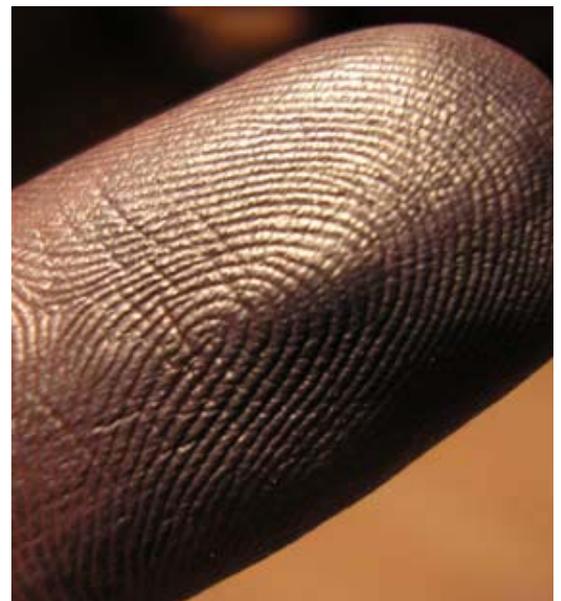
Telvent Public Administration's impressive development of products and services, in both the public and healthcare sectors, has afforded it an enviable position when it comes to transforming information technologies. Continuous improvement and evolution of its platform of electronic administration services has been consolidated to become a benchmark for the deployment of the new Law on Citizens' Access to Public Services (LAECSP), in Spain. Indeed, the Electronic Signature product developed by Telvent has become the public administration's chosen tool for verifying the authenticity of citizens' identity.

In the area of Territorial Information Systems, Telvent has unveiled innovative proposals for territorial management products and services based on an open software platform, delivering specific solutions for both environmental management as well as urban development, making Telvent a point of reference in Spain.

In the Healthcare sector, Telvent has taken on the challenge of turning the complexity of the current healthcare system into simplicity, based on two premises:

- Clear patient orientation
- Comprehensive and global management of all healthcare processes

To this end, Telvent combines the extensive experience of its professionals with cutting-edge technology and medical fact – over 40,000 professionals use its solutions every day – in order to fully meet the needs of those involved



in the healthcare process. Today, implementations of diagnostic digital imaging and single patient information systems, including numerous international initiatives, mean that Telvent is undeniably a leading figure in the field of healthcare-applied information technologies.

Finally, Telvent's participation in the implementation of the Spanish e-NID scheme (electronic ID cards) through personalization systems for the cards, coupled with document verification systems at border checkpoints deployed throughout national territory, have both greatly enhanced the potential of the recently created Homeland Security division in the area of security and defense.

### Global Services

Global Services was conceived as a neutral IT provider with the ability to bring value to its customers throughout the entire life cycle of the technology applied to the customer's business:

- Acting as a day-to-day partner in the customer's business and providing sector solutions, ranging from initial requirements design phases to business transformation by means of process and/or technological consulting.
- Demonstrating its reliability in integrating and starting up customer projects within the timeframe demanded by the market, thereby ensuring their viability and success.
- Capably managing operational outsourcing and daily maintenance of all of the customer's information and business operating systems.
- Providing economies of scale through the shared asset, resource and IT infrastructure management needed for the customer's present and future business security and development.

Global Services provides solutions that contribute to the present and future security and sustainability of businesses, enabling customers to adapt to today's rapid technological growth, efficiently manage changes in the market and bring innovation to their businesses through open models for collaboration.

Its strategy is based on being the customer's partner on a day-to-day basis, gaining specific knowledge of the business, and growing therein in any line of activity, in order to subsequently deliver global solutions that effectively align technology with the business, making it viable under any future market circumstances.

Main projects:

1. RTVE. Development of Spanish Radio and Television's new web portal: a multi-channel portal with current and historical audiovisual content featuring innovating technologies in Internet TV and Internet Radio.
2. Real Madrid. Outsourcing of the "realmadrid.com" web portal platform, which centralizes all of the updated information and contents of one of the world's main sports franchises.
3. Grupo Cofares. Outsourcing of the information systems of the leading pharmaceutical distribution company in Spain at the Telvent Data Centers.



- 4. Bergé. Outsourcing at Telvent of the management systems of Bergé Automoción, one of the main international vehicle distributors worldwide, part of the Bergé Group.
- 5. Telecinco. Development of the interactive audiovisual content portal for Telecinco, a private television channel, with an emphasis on on-demand television services.
- 6. Tripartite Foundation. Outsourcing and start-up of the new technological platform for the information systems of this state-owned public institution for promoting and disseminating professional employment training.

According to a 2008 report by the DBK analyst, Global Services is ranked fourth in Spain as a provider of IT service consulting, behind Indra, IBM and Accenture.

The top five companies in the Spanish market handle 38% of the market, with the top ten managing a total of 53%.

Being among the top five in the Spanish market enables Telvent Global Services to improve its public image in the sector, and, at the same, allows it to raise its competitiveness in order to push up its market share.

Reinforcements such as Matchmind have rounded out the Global Services market capabilities, positioning it as the only neutral provider with the ability to act as a partner to its customers at any time technology is needed, offering solutions that include consulting, integration, outsourcing and IT infrastructure management.

Other competitors hold a solid position in one or two business areas, but lack the technological neutrality due to being the manufacturers of the technology as well; nor do they have the capabilities in the rest of the areas that enable a global perspective of the customer's technological needs over the course of the entire technological life cycle.



## Industrial Engineering and Construction

Abeinsa is an industrial and technology group that offers integrated solutions for the Energy, Transportation, Telecommunications, Industry, Service and Environmental sectors. These innovative solutions aimed at contributing to sustainability, enable the creation of value for the group's customers, shareholders and employees, ensuring an international forward-looking projection and return on investment.



International Presence





## Our business

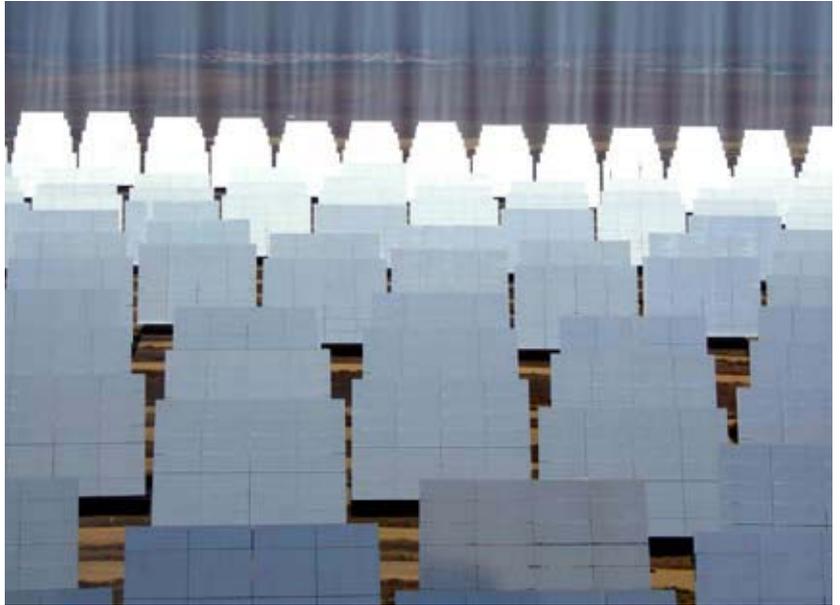
Abeinsa is an international company specialized in industrial engineering and construction. Its business revolves around six divisions or lines of activity: Energy, Installations, Telecommunications, Marketing and Ancillary Manufacturing, Latin America, and New Horizons. Abeinsa's growth is based on the suitable development of energy infrastructures, on the construction of biofuel and solar thermal power plants, and on sustained growth in infrastructure activities with the greatest added value and a high degree of internationalization.

Abeinsa's commitment to sustainable development is evident from the efficiency of its processes and products and its ability to minimize their environmental impact. This places the company at the forefront of technological developments within the industry. Abeinsa provides clean energy solutions and combats climate change on the following fronts:

- Design and construction of power plants based on renewable energies and able to generate thousands of MWh of clean energy.
- Design and construction of biofuel plants that help to reduce CO<sub>2</sub> emissions.
- Design and construction of more efficient and cleaner energy facilities.
- Design and construction of efficient power lines that help to reduce energy consumption.

Moreover, Abeinsa conducts research in different fields and develops and applies new technologies that help fight climate change and contribute to the creation of a sustainable world:

- 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, the leader in hydrogen technology, with pioneering R&D projects in hydrogen production and clean energy generation utilizing fuel cells.
- Through the development of new technologies linked with energy efficiency.
- Through research into new renewable energies.



The company also addresses the expectations of interested parties with specific policies focused on attracting and retaining talent. It also builds up relationships of trust with local communities, preserves biodiversity and applies the principles of transparency in its relationships with the authorities of the countries it operates in.

Abeinsa conducts activities in more than 20 countries while operating in very 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.

By paying attention to local detail, the company is able to keep in touch with what concerns society while also protecting and strengthening its reputation, unearthing business opportunities and generating social trust in the company. This focus undoubtedly stimulates all those working in Abeinsa and motivates them to ensure the company plays its role within society and, thereby, contributes to the construction of a better world for everyone.

Abeinsa’s constant growth is largely due to the basic pillars of its strategic plan, which are: customer satisfaction, internationalization, profitability, innovation, human resource development, and social involvement.

Abeinsa conducts the following lines of business:

1. Energy. Integrated solutions in the energy sector by promoting, seeking funding for, engineering, constructing and operating new power plants and industrial facilities, with special emphasis on the solar and biofuel sectors, and upgrading existing facilities.
2. Installations. Engineering, construction and maintenance of electric and mechanical infrastructures and instrumentation for the energy, industry, transport and services sectors; installation of insulation, refractory and passive fire protection materials.
3. Marketing and ancillary manufacturing. Marketing of products related with the aforementioned activities, as well as manufacturing of auxiliary elements for energy and telecommunications.
4. Telecommunications. Integration of telecommunication networks and turnkey projects.

5. Latin America. A market in which the company has maintained a stable presence for more than forty years through local companies that carry out all the activities of the Business Unit in a fully autonomous manner.
6. Abeinsa New Horizons. Develops innovative projects linked to sustainable development: hydrogen technologies, energy efficiency, carbon credits management, CO<sub>2</sub> capture and valorization, and new renewable energies.

There are common characteristics to Abeinsa's customer base and these determine the company's strategy for each of its lines of business. The Group's customers are basically public administrations and large corporations in industrial sectors ranging from the environment to energy generation. The very nature of its customers means Abeinsa must make every effort to achieve a high degree of quality and thereby assure customer satisfaction. In this respect, the Group invests continuously in innovation and the development of production processes, and in improving work systems and methods in order to adapt to the increasing specialization of the customers its services focus on.

Environmental management in Abeinsa is integrated and aligned with its corporate strategy and incorporated into the decision-making process of the company's senior management. On the basis of this commitment, the aim is to minimize the impact of its activities on the natural environments in which it operates by developing a wide-ranging suite of activities focused primarily on aspects related to climate change, implementation of environmental management systems, correct management of discharges, wastes, emissions, contaminated soil and other repercussions on the environment.

### Summary 2008

The international development and growth Abeinsa has been experiencing over recent years continued over 2008, positioning the company as a world market leader in the sectors it operates in. This achievement has been possible thanks to the work of the human team that executed the company's construction and engineering projects in 2008, of which we would highlight:



- Completion of construction of PS20 solar thermal power plant for Abengoa Solar. This 20 MW plant is the second to utilize tower technology with more than 1,200 mirrors at the Sanlucar La Mayor Solar Platform (Sevilla).
- Construction of Solnova 1 and Solnova 3 solar thermal power plants for Abengoa Solar. Both of these 50 MW plants utilize parabolic trough technology.
- Construction of four bioethanol plants for Abengoa Bioenergy: two in Europe (a 200,000 m<sup>3</sup> capacity plant at Lacq, France, and a 480,000 m<sup>3</sup> capacity plant at Rotterdam, Holland), and two in the United States (in Illinois and Indiana, each boasting a 333,000 m<sup>3</sup> capacity).
- Construction of two ISCC technology solar thermal power plants: the 470 MW plant at Ain Beni Mathar (Morocco), and the 150 MW plant at Hassi R'Mel (Algeria).
- Execution of Package II of the Electric Energy Interconnection System for Central American Countries (Siepac). This project comprises the construction of 950 km of 250 kV transmission line routed through Nicaragua, Costa Rica and Panama.
- Completion and commissioning of the ATE III transmission line works, comprising Section I of the North South III interconnection, with 318 km of 500 kV cable and 107 km of 230 kV cable, comprising the following subsections: Colinas to Itacaiunas, 500 kV single circuit; Itacaiunas to Carajas, 230 kV single circuit; Itacaiunas to Maraba, 500 kV double circuit; and the 500/230 kV – 900 MVA Itacaiunas substation.

Special mention must be made of two projects awarded during the year in Brazil and Peru:

- Contract to construct a new power transmission line in Brazil: the National Electric Energy Agency of Brazil (Aneel) awarded Consorcio Amazonas, in which Abengoa holds a 50.5% stake and Grupo Electrobras the remaining 49.5%, the operation of a 586 km, 500 kV power transmission line between the towns of Oriximina, Itacoatiara and Camiri. The concession contract includes the construction of the installations, and subsequent 30-year operation and maintenance thereof.



- ATN: early in the year, Abengoa Perú SA was awarded the concession contract for the “Carhuamayo – Paragsha – Conococha – Huallanca – Cajamarca – Cerro Corona – Carhuaquero Transmission Line” project. The contract includes the design, construction and 30-year administration, operation and maintenance of the aforesaid transmission line. This almost 670 km line is routed through six provinces in the northern mountain range of Peru. Its average height is 3,200 m.a.s.l. The main objective is to strengthen the National Interconnected Electric System (SEIN) which will allow greater energy transmission capacity to this important region of the country.

### Evolution of the business

Within a generalized context of a financial crisis that is affecting the construction activity and the economy in general, Abeinsa has managed to overcome these barriers and achieve business growth. This means that, within a hostile market resulting from the economic and financial situation, the company has performed better than the average for the sector.

Strict control of costs and risks, together with intense commercial activity kept very close to the ground, has allowed Abeinsa to get through this period while maintaining stability in the basic variables of its business. Within a context in which it is obvious the company cannot be completely free of the conditions of the marketplaces in which it conducts most of its activities. Abeinsa has managed to ensure these conditions did not alter, in any way, the normal evolution of its business, and the company continues to work along these lines to ensure the situation does not change in the future by:

- Fostering growth in regions or for products with promising prospects for the future. In this sense, Abeinsa has strengthened its international standing in countries such as Brazil, Peru and India.
- Focusing on cash-flow generation. In recent months, Abeinsa's businesses have been working on adapting the available supply to a lower demand scenario, on rigorous control of costs, and on reducing working capital, with meticulous management of customers and of stocks.

Therefore, even though the general economic environment is still shrouded in doubt, Abeinsa's prospects are still favorable within both the domestic and international markets. In the Spanish market, in spite of the deceleration it is experiencing, no slowdown in demand has been noticed in the main sectors on which the company's supply focuses. Abeinsa's position in relation to large-size customers, the coverage provided by its order book at year end, and reasonable expectations – in relation to the awarding of contracts from bids already presented and to new opportunities in the pipeline – all allow the company to be fully confident that it will attain its growth and profitability objectives in the Spanish market.

Prospects are also favorable in the international markets where the company expects continued growth at rates higher than those of the domestic market.

The solid foundations for growth allow the company to optimize profitability by applying rigorous selection criteria for new projects in function of their potential for creating value. To this end, well defined objectives that pursue selective, sustainable and profitable growth have been established. These include:

- To continue to lead the future growth of the sector.
- To continue to promote recurring services, such as integral maintenance of installations.
- To increase the average profitability of the activity by fostering the higher added value businesses, such as turnkey projects, while maintaining a strict policy of cost control.
- To promote new businesses by investing in projects related to renewable energies, both wind and solar, and in traffic and transportation control systems.

- To implement a geographic expansion policy while applying rigorous criteria regarding profitability and stability.

**Our activities**

**Energy**

This line of activity focuses primarily on the promotion, construction and operation of industrial plants and conventional (cogeneration and combined cycle) and renewable energy (bioethanol, biomass, solar, and geothermal) power plants.

In 2008, Abeinsa, through Abener, consolidated its international presence as leader in the construction of solar thermal power plants and bioethanol production plants. The initiation of pioneering projects worldwide utilizing environmentally friendly technologies, coupled with its experience in the main markets, have allowed the company to position itself as an undisputed benchmark within the sector.

The Operation and Maintenance (O&M) line of business 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 design performance levels in terms of output, availability and load factor.

**Abener Energía**

If in 2007 Abener achieved international leadership with PS10 (the world’s first tower technology solar thermal power plant to operate commercially), in 2008 it surpassed its growth expectations thanks to completion of the PS20 power plant. Both plants were constructed for Abengoa Solar, PS20 marks Abener’s second venture into this type of power plant. It is a 20 MW plant with more than 1,200 mirrors (twice that of PS10). This project consolidates Abener as a leading construction company for these types of facilities.

Parabolic trough collector (PTC) technology is one of the most innovative solutions of recent years in the solar thermal sector. Abener’s construction portfolio for Abengoa Solar includes the Solnova 1 and Solnova 3 PTC technology power plants, on which construction continues as scheduled, and the Solnova 4 plant, for which





construction commenced in 2008. The three plants are of very similar characteristics: each plant is 50 MW with a solar field of 360 collectors.

Abener's solar line of business also focuses on ISCC (Integrated Solar Combined Cycle) technology. Abener is a pioneer in the construction of ISCC plants with two projects currently under construction in Algeria and Morocco, in collaboration with the Abengoa Solar Business Unit. These are the world's first two hybrid power plants, 150 MW and 470 MW respectively, comprising a PTC solar field and a combined cycle. Both plants will be brought into operation in 2010.

As the undisputed leader in the construction of bioethanol facilities in Europe, Abener is currently executing the largest plant on the continent. With a capacity of 480,000 m<sup>3</sup>, the plant is being constructed in Holland for Abengoa Bioenergy. It is one of the company's most ambitious projects. Abener also successfully completed the construction of another 200,000 m<sup>3</sup> capacity bioethanol facility in France, also for Abengoa Bioenergy.

Abener is currently present in Poland (Abener Energo Project Gliwice), the United States (Abener Engineering and Construction Services, Abencs), India (Abencs Engineering Private Limited, AEPL), Mexico (Abener México), and Brazil (Abentey). Its expansion concludes with the incorporation of the company Abener Ghenova Ingeniería (AG Ingeniería) following the agreement signed with the engineering firm Ghenova. The main activity of this new company will be to provide engineering services for the solar power plants and industrial plants undertaken by Abener, in coordination with available engineering resources in Poland and India.

### Operation and Maintenance

During 2008, the O&M Division conducted its activities at eight different plants (three cogeneration plants, three generation plants operating at gas strata, one photovoltaic plant, and one tower technology solar thermal power plant). It also provided O&M technical assistance services at another cogeneration plant.

Thanks to the experience accumulated over many years, the Division has been entrusted with the O&M work for the coming years for two plants that are currently under construction outside Spain: the 470 MW total

installed output ISCC plant at Ain Beni Mathar (Morocco), and the 150 MW ISCC plant at Hassi R'Mel (Algeria). These two international projects are an unprecedented challenge, which will allow the Division to export all its experience, knowledge and know-how.

## Installations

This is the field in which Abengoa commenced its industrial activity back in 1941. The parent company is Inabensa, S.A. and it engages in the core traditional activities, which are mainly engineering, construction, maintenance of electric and mechanical infrastructures and instrumentation for the energy, industry, transport and services sectors, as well as the installation of refractory, insulation and passive fire protection materials.

### Inabensa

Its development of the activities defined in the strategic plan has allowed it to not only meet the objectives established in the annual plan, but also to establish the bases required to successfully undertake the important growth program established for the next few years.

Of note among the work commenced, continued or completed by Inabensa in 2008 throughout its different lines of business are:

#### Electric installations

For a further year, Administrador de Infraestructuras Ferroviarias (Adif) has trusted Inabensa to execute its projects, such as the electric substations for the AVE (High Speed Train) Madrid – Valladolid – French Border line and the electric traction substation at Blanes, in Gerona; and recently the project comprising the three electric traction substations and transformer substations associated with the same line.

For Red Eléctrica de España, works were conducted at the electric substation on the Betica and Duero demarcation. Among other projects, works and services continued in the provinces of Cadiz and Huelva for Endesa, as did distribution, metering, outage and repair works for Iberdrola in Guipuzcoa.

This year, for the Regional Government of Andalusia, Inabensa executed the reform works of the air-conditioning installations in the New Zealand pavilion, in Seville. Work was also carried out on the construction of new tracks and conditioning of existing tracks in the Camilo Cano indoor sports center for La Nucia Town Council, in Alicante. Also of note were the electronic installations at different Mercadona shopping centers throughout Spain.

Special mention must also be made of the work completed at the largest private initiative industrial technology complex in southern Spain – Palmas Altas Technology Park – which will be Abengoa's future HQ and will allow the company to concentrate its activities focused on leading-edge technologies, environmental excellence and sustainable development in the city of Seville.

#### Large HV lines

The overhead high-voltage lines sector continues to be one of Inabensa's key activities and work has continued to flow in from the company's long-standing customers. This year, construction work commenced for REE on the 400 kV Soto-Penagos line; the shielding, hoisting and stringing of the 400 kV Escombreras Rocamora line (section III), as well as section I of the Castellon-Muruarte line. The stringing of the Morvedre-Gausa line and of the Zom Sevilla fiber optic cable was also executed for REE in 2008.



High voltage line works were also executed for Endesa Distribución Eléctrica under the Tramontana Plan, as was the 220 kV Granadilla-Vallitos line. Once again, the work performed over 2008 for Iberdrola Distribución Eléctrica was worthy of particular note.

### Railways

Inabensa's railways activity is noteworthy for the projects undertaken during the year:

- Execution of the rehabilitation and upgrading works on the overhead contact wire on the Gallur-Castellon section of track.
- For Administrador de Infraestructuras Ferroviarias (Adif), the construction project and maintenance of the overhead contact wire installations and associated systems for the new Madrid – Castilla La Mancha – Valencia Autonomous Region – Murcia Region high speed railway access.
- The classification system relating to the works execution contract for the total renovation and independent compensation project for the catenary on the Mataporquera – Reinosa section of the Palencia – Santander line.
- Participation in the Regional Government of Catalonia project aimed at constructing an interchange system.

### Maintenance and instrumentation

Both Almaraz and Trillo Nuclear Power Plants were once again key pieces in the nuclear energy sector for 2008, with numerous services provided for maintenance and instrumentation, operation and loading, modifications to electric designs and operation of the different computerized process systems.



Maintenance works were carried out for Cepsa at several of its facilities and refineries. These included the expansion of the cogeneration substation, lighting systems, 66 kV substations and the interconnection project at its La Rabida refinery, in Huelva, along with the vacuum unit project at San Roque refinery, in Gibraltar.

**Insulation / Refractory / Passive fire protection materials**

This year, Protisa carried out soundproofing works for Sniace Cogeneración, and special insulation works on chlorine pipelines, acoustic enclosures and sundry works for Solvay Química in Torrelavega, Cantabria.

For BP Oil España, refractory lining repair works were carried out, as were surveys and acoustic enclosure works at the refinery in Castellon. Several fireproofing projects were also carried out at the Cepsa refinery in Algeciras, in addition to refractory lining works for Repsol Petroleo in La Coruña.

**Mechanical installations**

In 2008, the Mechanical Assemblies Division completed construction of the 1.89 MW Linares and Casaquemada photovoltaic plants, each formed by 132 double-axis sun trackers, and of a 5.6 MW photovoltaic plant formed by single axis flat collectors.

Within the field of installations, work continued on the project aimed at Reforming and Adapting the Installations of the Former Vigil de Quiñones Hospital to current Legislation, as did the mechanical installation works on the Palmas Altas Technology Park project.

**Concessions**

Of note in the health sector as regards service concessions were the construction of the hospital building, outpatients' consulting area, and parking areas, among others, of Costa del Sol Hospital, in Marbella, and the photovoltaic installations at San Juan de Dios Hospital in Malaga, and also at the hospital of the same name in Las Palmas de Gran Canarias.

We would also highlight the concession of several photovoltaic power plants on the Expoagua site in Zaragoza.

**Manufacturing**

In 2008, Inabensa's manufacturing division continued to play an important role in contracting switchboards and electric cabinets manufactured in the workshops of Madrid and Seville. Of note in this sector were the





switchboards manufactured for Initec for the refinery in Cartagena, and the manufacturing of cabinets for numerous customers including Grupo Duro Felguera, BP Oil, REE and General Electric, among others.

#### Overseas

Year after year the activities carried out abroad have strengthened the company's standing in those markets considered strategic. Of note are the following:

- In Central America, the company was awarded the construction contract for Package II of the Electric Interconnection System for Central American Countries (Siepac). The project involves the construction of 950 km of 230 kV line routed through Nicaragua, Costa Rica, and Panama.
- In Morocco, for the ONE, the 132 km double circuit 400 kV Zemmour-Mediouna line, and two 30 km double circuit 400 kV lines in parallel from Mediouna-Oualili.
- In Libya, Inabensa is executing, for Gecol, the 575 km single circuit 400 kV Misurata-Surt-Ras Lanouf-Agdayia line.

#### Inabensa Maroc

In the energy sector, Inabensa Maroc installed 225 kV lines for its customer Autoroutes Du Maroc, and the first substation for Abener at the ISCC Ain Beni Mathar power plant is also currently under construction. The company also completed rural electrification projects.

Noteworthy in the telecommunications sector is the 2008 infrastructures deployment project and fiber optic cable installations for the country's third largest operator, Wana, and the second largest operator, Mediatecom.

#### 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., 170 km of the 400 kV S/C Rasnaluf-Sirt high voltage line for General Electric Company of Libya, and the supply of galvanized steel angles for Eucomsa (Spain). Furthermore, there are projects for a Transmission System linked to the Mahan Thermal Energy Project for Essar Power Transmission Company, a 400 kV D/C Jakhau-Halvad and Halvad-Vadavi line for Suzlon Power Infrastructure Pvt Ltd. and the supply and installation of another 220 kV transmission line from Hetauda to Bharatpur, in Nepal, for Nepal Electricity Authority.



**Inabensa Tianjin**

In 2008, further inroads were made into the Chinese manufacturing industry through the subsidiary Inabensa Tianjin. The company has a new production center (more than 5,000 m<sup>2</sup>) equipped with the most advanced resources for carrying out its business. The center is in the Tianjin Economic and Technological Development Area (TEDA).

The most significant projects were, through Telvent, the manufacturing of RMY local control traffic regulators for Panama, Spain, and India, and ATVM ticketing units for Valencia metro in Venezuela. Furthermore, in 2008, Inabensa Tianjin was homologated as a manufacturer of motor control centers and turbine control equipment, having implemented projects for Chile, Nigeria, and Azerbaijan.

**Inabensa France**

The most important projects executed in 2008 included the final construction of the 400 kV Marlenheim – Vigy line; the changing of the conductors on the 400 kV Avelin-Warande-Weppes line; and reinforcement work on the 225 kV Jonquières – St. Césaire 2, the 400 kV Cordemais – La Martyre, and the 400 kV Tamareau – Tavel lines.

**Inabensa Abu Dhabi**

In 2008, Inabensa’s subsidiary in the United Arab Emirates successfully designed a fiber optic network for ADWEA. The network covers the entire Emirate of Abu Dhabi and connects most of its transformer substations. The network will be capable of almost unrestricted growth and will cover ADWEA’s existing and future needs.

Lastly, the most important project awarded this year involved the installation of a suite of 33/11 kV substations in the eastern region of the country for ADDC, thereby confirming Inabensa Abu Dhabi’s healthy position in this very strategic and emerging market.

**Telecommunications**

This line of business is committed to integrating turnkey 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 2008, as well as the provision and maintenance of customer loops and equipment. Within the latter, there was an important increase in the procurement and maintenance of ADSL broadband and its range of associated products.

### Abentel

During the year, the company participated in the FTTH network pilot project aimed at installing fiber optics right up to the customer's home. This includes construction of the supply and distribution networks, installation of fiber optic cable for the customer and associated equipment. To bring this to fruition, large investments were made in installation and measuring units, and in training the necessary personnel for network deployment: installers, and engineering and license personnel. FTTH is expected to generate a lot of activity in years to come.

The works indicated above correspond to the 2007 – 2011 Global Customer Loop Contract signed with Telefónica de España S.A.U. As regards implementation in provinces, work continued in the same provinces as the year before and the company maintained its leading position as regards contracted volume with operations in Alicante, Badajoz, Barcelona, Cádiz, Jaén, Madrid, Sevilla, Tenerife, and Valencia.

### Inabensa Communications Division

Inabensa's communications division continues to provide its experience while adapting to new technologies. This can be seen in the projects performed for the country's main mobile phone operators, such as the infrastructure and site works in Andalucía and the central region, the 2G radio and Utran 2008 transmission equipment installations for Vodafone, as well as diverse maintenance and associated work for Telefónica Móviles España.

Furthermore, the RIMA 40 project was completed successfully during the year for Telefónica, involving the installation, configuration and commissioning of 11 optic transmission nodes with 40 Gbps Dense Wavelength Division Multiplex (DWDM) technology. These nodes are the first in Europe to feature this technology.

### 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 leading position in Spain and consolidated its international presence as a supplier of electric



materials, instrumentation and communications for the chemical and petrochemical industries, refineries, and combined cycle, solar thermal, nuclear, and thermal power plants, and for the heavy industry in general.

As part of its development model, Abencor has paid special attention to activities related with sustainable development, and has likewise established a new Sales Division focused on Energy Efficiency. The objective is to broaden the range of products and provide solutions that allow its customers to optimize the resources used in energy consumption.

Eucomsa experienced significant growth during the year, spurred on by the roll out of the solar plant projects included in Abengoa's program and the exceptional procurement of pylons for transmission lines in Spain for REE as a consequence of the large investment plan this company has launched.

Bolstered by its traditional export business, Comemsa has continued to play an active role in the US and Central and South American markets. To meet this demand, the company's production capacity was increased in 2007. Its facilities were expanded and three new process lines that became fully operational in 2008 were purchased. During the year, more than 100,000 t were produced from commencement of operations.

### Nicsa

The most significant projects undertaken by Nicsa in the year were:

- Reconfiguration of the General Lazaro Cardenas Refinery (Minatitlan, Veracruz, Mexico), Package III, Combined Diesel Catalytic Cracking and Hydrodesulfurization Unit. Turnkey by Dragados Industrial for PEMEX, where Nicsa has supplied the medium and low voltage cables, instrumentation cables, lighting, pushbutton stations, conduit boxes, intercommunication and public address system, electric installation material, instrumentation installation material, cable trays, conduits, electric plotting and junction boxes.
- Granadilla II. 1 x 240 MW CCTPP, Tenerife. Turnkey by Técnicas Reunidas for Endesa, Nicsa supplied the grounding system, medium and low voltage cables, instrumentation cabling and fiber optics, lighting system (supply and engineering), busbars, trays, conduits and accessories, and sundry instrumentation material.
- Remodeling and capacity increase project for the gas field compression installations at Saih Rawl, in Oman. Turnkey by Técnicas Reunidas and Initec for PDO (Petroleum Development Oman). Supply of the grounding system, safety panels and breakers, high voltage, and medium and low voltage cables, conduits, lighting, conduit boxes, and electric installations material.

### Abencor

In 2008, Abencor achieved its highest ever turnover following five years of uninterrupted growth.

Of note among the projects undertaken by Abencor in 2008 were:

- The supply of more than 50,000 solar photovoltaic modules to generate energy at plants connected to the grid. These panels have been utilized in different locations, noteworthy among which are the facilities at Las Cabezas, Linares, and Expoagua, in Zaragoza.
- The supply, installation and start-up of six power transformers for the Endesa substations that powered Expoagua, in Zaragoza, as well as other transformers for other Endesa substations in Cataluña y Andalucía, and for Hidrocantábrico, in Leon.
- The supply of MV cables for the splitting of TC1 Picasso, at Malaga Airport, where a 12/20 kV 1x240 H 16 AS aluminum cable was installed in September.

### Eucomsa

2008 marked a turning point for Eucomsa as regards both activity and turnover. The volume of business almost doubled that of 2007, therefore representing extraordinary progress for the Company.

In order to meet the structural needs of the parabolic-trough solar thermal power plants, the company supplied the structures for the Solnova 1 and Solnova 3 plants in Sanlucar La Mayor (Sevilla), and also arranged the contracts in Morocco and Algeria, in close coordination with its subsidiary in Mexico, Comemsa.

As regards the traditional pylon market, significant orders were received from REE for 400 kV lines, and numerous supplies of pylons for sundry grid maintenance works were also made. Contracts were also signed for substations, such as those of Garraf and Cartama, each 400 kV.

### Comemsa

In line with corporate strategy of commitment to sustainable growth, 2008 saw Comemsa begin to manufacture structures for the solar thermal power plants Abengoa Solar is constructing at the Solucar platform, Solnova 1 and Solnova 3, and for the Hassi R'Mel plant in Algeria and the Ain Beni Mathar plant in Morocco. The aim with this new line of products is to diversify Comemsa's activity and make it less dependent on the transmission lines sector, and also to diversify markets and set the United States market in its sales sights, without forgetting Central and South America.

The most significant projects undertaken in 2008 included continuation of the supply for the Siapec project (Central America Electric Interconnection) contracted with Inabensa, which will be completed in 2009. With Cobra, Comemsa designed, tested and supplied the structures for the Hidroxcabal project in Guatemala. Within the same country, the company also supplied the interconnection line with Mexico for Isolux. A line was also exported to Trinidad and Tobago for the Colombian company HMV.



### Latin America

The organization of the Latin America Business Unit is based on making its presence felt in different countries through local companies: Argentina, Brazil, Chile, Mexico, Peru, and Uruguay. It operates as an independent unit within Abeinsa as it operates within a specific market where our presence has been stable for more than 40 years and in which the different companies conduct all of Abeinsa's lines of business, such as Energy, Installations, Telecommunications, Marketing and Auxiliary Manufacturing, Civil Engineering and Environmental Services.

The policy of diversifying by country and product, coupled with the strengthening of the management team and its flexibility, have allowed the company to enjoy a satisfactory year with the help of the technological backing of Abeinsa and under common management standards.

A very important portion of the business comprises the high voltage line concession contracts, which Abeinsa constructs and operates. In this regard, of note in 2008 was the commercial start-up of ATE III, the 318 km of 500 kV and 107 km of 230 kV transmission line corresponding to Section I of the North South III Interconnection, comprising the Colinas – Itacaiunas 500 kV single circuit; and the Itacaiunas – Carajas 230 kV double circuit subsections, and the 500/230 kV – 900 MVA Itacaiunas substation.

We would also highlight the contract awarded by the National Electric Energy Agency of Brazil (Aneel) to Consorcio Amazonas - in which Abengoa holds 50.5% and Grupo Electrobras the remaining 49.5% - to operate the 586 km, 500 kV transmission line between the towns of Oriximina, Itacoatiara, and Camiri. The concession includes the construction of the installations and operation and maintenance of the same for 30 years. The estimated investment is more than \$820 M. In addition, the project includes the construction of two new substations and expansion of an existing substation. The contract is to be executed in 36 months and the works will be carried out on the left bank of the Amazon River.

As a continuation of the company's partnership strategy, Consorcio Integración Norte (25.5% Abengoa, 25.5% Andrade Gutierrez, and 49% Electrobras) was awarded, in November 2008, the transmission line concession contract for the Madeira River energy complex. The concession includes construction of the installations and a subsequent agreement to operate and maintain them for a term of 30 years. The estimated investment in the works is more than 4,000 MBrl – equivalent to € 1,300 M. The project will be executed with direct current transmission technology and transportation capacity will be 3,150 MW at 600 kV. The line spans a total of 2,375 km (equivalent to the distance between Madrid and Oslo).

In 2008, Teyma Uruguay completed its company restructuring process and created four parent companies for its Business Lines: Teyma Construcción (construction in Uruguay), Teyma Internacional (international construction), Teyma Forestal (services and biomass), and Teyma Medioambiente (urban and industrial waste services). This has allowed the company to position itself better in its target markets and to tackle the new projects contracted in recent years while also broadening its prospects for forthcoming years.

In an ever more competitive environment, Abengoa Peru achieved significant growth rates and established itself as one of the sector's most important players in the creation and development of electric, civil and hydraulic infrastructures. The concession contract awarded for the design, construction and 30-year operation of the 670 km, 220 kV transmission line, with seven substations, from Carhuamayo (central mountain range) to Carhuaquero, in the north of the country, is especially noteworthy.

### Abengoa Brasil

The implementation of the new strategic plan has resulted in a change of approach within Abengoa Brasil, and is seen as a major challenge on a par to when the company first commenced activities in the country. The

proposed diversification of activities is being undertaken through collaboration and joint business development agreements with leading companies in the clean energy generation sectors (bagasse from sugar cane and wind power) and by diversifying customers of its traditional services.

As a result of the strategic partnerships established and the resulting synergies, Consorcio Amazonas (50.5% Abengoa, and 49.5% Electrobras) was awarded a new 563 km power transmission line concession contract in July 2008, requiring an estimated total investment of \$800 M. In November 2008, Consorcio Integración Norte (25.5% Abengoa, 25.5% Andrade Gutierrez, and 49% Electrobras) was awarded the 2,375 km transmission line concession contract for the Madeira River energy complex.

### Energy Transmission Grid Concessions Division

In Brazil, the company is operating 3,784 km of high voltage lines (230 – 500 kV) and a further 463 km of additional lines are currently under construction. Total investment has been approximately \$1,720 M.

Following the commissioning of the ATE III, 2008 has seen the company operate at its facilities 6,157 MW of the SIN (National Interconnected System), representing 9.4% of the system's total output, while strengthening the interconnections of the country's South-Southeast and North-Northeast regions in order to provide greater operational reliability and flexibility.

Moreover, the company brought the System Operation Center in Rio de Janeiro into operation, enabling it to centralize energy transmission grid operating activities through the use of cutting-edge technologies and to enhance the reliability and efficiency of such activities.

### Lines and Transformer Substation Construction Division

In 2008, the works corresponding to ATE III were completed and brought into operation. The contract value was 700 MBr. It was completed ahead of the contract date despite the significant delays in attaining the necessary environmental licenses.

At present, four new contracts are in progress with different concessionaires: ATE IV, ATE V, ATE VI, and ATE VII, all of which are 100% Abengoa owned. These projects will be delivered to the concessionaire in question over the first quarter of 2009.

### Teyma Abengoa

The main contracts completed or in progress in 2008 were:

- 500 kV Colonia Elía Section "0" substation. The work, contracted in 2007 by Intesar S.A., the candidate awarded the "Third Section of the Transmission System associated with the Yacireta Hydroelectric Power Station, Rincon - Santa Maria - Rodriguez", was completed in July this year. By May 2008, partial fitting out had already been executed. This allows energy from Yacireta Hydroelectric Power Plant and from the Republic of Brazil to be transmitted to the rest of the country.
- 132 kV Güemes Salta Norte HVL. The State Department of Energy directly awarded Teyma Abengoa this contract to construct the mountainous section of the 132 kV Güemes – Salta Norte line.
- 500 kV Stringing Works. In relation to the Transmission System associated with the Yacireta Hydroelectric Power Plant and also the 500 kV Jose de San Martin Thermal Power Plant Interconnection. Incesar S.A. contracted Teyma Abengoa to string the conductors (four conductors per phase), guard wires and OPGW, for a combined total of 50 km for both projects.

**Abengoa Chile**

Of note among the main projects completed or in progress in 2008 were:

- Construction of the Northern Waste Management Center (WMC) for the company Soluciones Ambientales del Norte. The facilities are located in the 2<sup>nd</sup> Region of Antofagasta within the municipality of Sierra Gorda. The plant will mostly receive waste from the large mining works in the area and will contribute significantly to the sustainable development of both the region and the country.
- Civil work and electromechanical installations for a new 500 kV yard and its interconnection with the existing 220 kV yard at Transelec’s Polpaico substation. The contract also includes modifications to the transmission lines in the El Rodeo sector, where the existing 500 kV Ancoa - Alto Jahuel No. 2 line will be sectioned, as well as modifications to the 500 kV line entry to Polpaico substation.
- Engineering, supply and construction, for Transelec, of the new transmission line that will connect Ventanas substation – located on the site of the Ventanas Thermal Power Plant – to the future Nogales substation programmed for the second quarter of 2009. The 29-km Ventanas-Nogales transmission line will be a 2x220 kV, 640 MVA line with two conductors per phase.



- In addition, Endesa awarded Abengoa Chile three contracts that include the supply, construction, assembly and commissioning of the transmission facilities required to evacuate generated energy from Quintero thermal power plant to the Central Interconnected System.

**Teyma Uruguay**

The four Lines of Business into which Teyma Uruguay has been split achieved sales that tripled the previous year’s volume, and prospects for forthcoming years point towards sustained growth in all areas.

**Teyma Construcción**

The main works completed or in progress in 2008 are described below:

- Administración de las Obras Sanitarias del Estado (OSE). Sixth Pumping Line Project aimed at solving the drinking water supply problems of the western area of Montevideo and Canelones. The contract includes the design, supply and installation of 33 km of 1,200 mm diameter ductile cast iron piping, as well as other smaller diameter pipes.

- Agroland. Wind Farm. The company Agroland has constructed Uruguay's first wind farm and the largest in the region, which includes 16 wind turbines for electricity generation. Teyma executed the civil and electric works, and provided assistance with installation of the units.
- Punta del Este: Le Parc Tower. The project, which has already been handed over to its owners, consisted of an 84-apartment tower, associated utilities, four swimming pools, tennis courts, a gym, dance hall, saunas, playroom, golf range and garages for 310 cars. The apartments occupy 20,000 m<sup>2</sup> and the garages 10,500 m<sup>2</sup>.
- Administración Nacional de Usinas y Transmisiones Eléctricas (UTE). Turnkey supply and installation of eight 10.5 MW piston engines for electric energy generation, and operation and maintenance of the same for two years at Batlle Power Station, in the city of Montevideo.
- Administración Nacional de Usinas y Transmisiones Eléctricas (UTE). Acting as subcontractor to Areva, the company contracted by UTE for the turnkey supply and installation of a 60/50 Hz, 400 MW frequency converter in Melo. Teyma is responsible for all the civil and electromechanical installation works.

### Teyma Forestal

The main contracts are:

- Automated harvesting for cellulose pulp production for Forestal Oriental S.A. In March 2006, work commenced under the first 4-year 100% automated forest harvesting contract for Forestal Oriental S.A. (Botnia) for its cellulose plant. This contract was extended by another 4-year contract, leading to annual timber harvest volumes of 300,000 m<sup>3</sup>.
- Automated harvesting for cellulose pulp production for Eufores S.A. (ENCE). In 2008, work commenced on a 4-year contract to harvest eucalyptus tree plantations for an annual volume of 150,000 m<sup>3</sup> to produce chipping to be sold to cellulose plants in Europe.

### Teyma Medioambiente

Its main activity at present is urban waste collection, the contract with Montevideo City Hall being the most important.

Under the name CAP, it provides the waste collection, street sweeping, washing and cleaning services in a specific area within Montevideo city center. The contract has a term of 7 years, renewable for a further seven years.

### Teyma Internacional

As a consequence of Abengoa's plans to invest in new biofuel and solar energy plants, Teyma has been contracted to participate in such projects and will collaborate with Abener on the civil works.

The main projects underway are:

- Bioetanol Lacq. Europe's second largest bioethanol production plant, boasting a capacity of 200,000 m<sup>3</sup>/year. The raw material is cereal grains and some 150,000 t of DDGS/year will be obtained as a byproduct.
- Biodiesel San Roque. Design and execution of the civil works for the construction of a biodiesel production plant that utilizes crude vegetable oils from soya, rapeseed, palm, palm olein and methanol as the raw material. The plant's production capacity is 200,000 t/year.
- Solnova I, Solnova III and Solnova IV thermal power plants, each with an energy output of 50 MW. They utilize a parabolic trough collector technology.



- ISCC Ain Bení Mathar – Morocco. A hybrid electricity generating plant that utilizes gas and solar thermal energy to achieve an overall combined capacity of 470 MW. It is the first in the world to operate with combined cycles of gas and parabolic trough solar field.
- Hassi R'Mel (Algeria) 150 MW hybrid electricity generating plant. It is a combined cycle (gas – steam) hybrid power plant that utilizes a solar field and groundbreaking technology. The solar field is formed by parabolic trough mirrors.
- Abengoa Bioenergía Sao Luiz – Cogeneration plant. EPC construction of 70 MW installed capacity cogeneration plant that utilizes bagasse as fuel at the Sugar and Alcohol Factory located in the city of Pirassununga - SP.
- Abengoa Bioenergía Sao Joao – Cogeneration plant. EPC construction of a 70 MW installed capacity cogeneration plant that utilizes bagasse as fuel at the Sugar and Alcohol Factory located in the city of São João de Boa Vista (Sao Paulo).
- Bioetanol Rotterdam. A 480,000 m<sup>3</sup>/year bioethanol production facility – Europe's largest. The raw material can be either corn or wheat and 325,000 t/year of DGS will be obtained as a byproduct.

**Abengoa Mexico**

The main projects under construction are:

- Project for supply and construction of the light crude heating system at Dos Bocas maritime terminal on the premises of Pemex Exploración y Producción, in Paraiso within the Mexican State of Tabasco.
- Abengoa Mexico, in consortium with Inabensa, was selected by the Spanish company Construcciones y Auxiliar de Ferrocarriles (CAF) to construct the electric energy system and install the catenary on the first 27 km of the suburban railway line. The scope of the work includes: the installation of the simple catenary system, the supply and installation of two 230 kV substations at the Buenavista and Tutitlan stations, the supply and installation of eight 23 kV auxiliary substations for stations, and the construction of the 27 km, 23 kV medium voltage subterranean distribution line.

- Execution of all the works required to construct and install six 400 kV substations in the State of Mexico, United Mexican States, with 1,150 MVA total inductive reactive compensation.

Abengoa Mexico was selected by the concessionaire Ferrocarriles Suburbanos, S.A. de C.V. to carry out the maintenance works on the first massive passenger rail transport project in the Federal District and conurban area of the State of Mexico. The contract includes: elaboration of the maintenance plan, preventive, corrective and predictive maintenance; supply of spare parts for both catenary and substations; and development of a training program for the concessionaire's personnel.

### Abengoa Peru

The most important projects currently being executed by Abengoa Peru are the Manchay and ATN agreements:

- The "Expansion and Upgrading of the Manchay Drinking Water and Sewage System" project is being executed within the framework of the Peruvian government's "Water for Everyone" program. It is the largest project under this program and is valued at more than 100 MPen. The project will benefit more than 40,000 economically underprivileged inhabitants by providing them with water and drains. The scope of the work includes the design, supply, preparation of lands and construction of the entire system.
- ATN. In February 2008, Abengoa Peru SA was awarded the concession of the "Carhuamayo – Paragsha – Conococha – Huallanca – Cajamarca – Cerro Corona – Carhuaquero Transmission Line" project following an open international bidding process under an integral project framework, meaning the concession includes the design and construction, and subsequent 30-year administration, operation and maintenance of the aforesaid line. Spanning nearly 670 km, this transmission line is routed through six departments in the northern mountain range of Peru: Pasco, Junín, Huanuco, Ancash, La Libertad and Cajamarca. Its average height is 3,200 m.a.s.l. Its main objective is to strengthen the National Interconnected Electric System (SEIN) to allow greater capacity of energy transmission to this important part of the country, which is experiencing rapid growth – especially in the mining sector. For Abengoa Peru, this transmission line is its first major concession contract as it will not only conduct its design and construction, but will also control its administration, operation and maintenance for the next 30 years. This will open up a new business horizon as a provider of high voltage electricity transmission services and a supplier of integral energy transmission solutions on a national scale.



**Bargoa**

Bargoa centers its business on manufacturing and marketing a wide range of products for telecommunication network installations and exchanges.

Its engineering team designs the products its customers require and also develops the injection and forging molds that allow it to manufacture the different components of the end product.

The company’s main customers during the year were Brazil’s telephone operators. Of note was Bargoa’s increased business with private, non-traditional, customers in Brazil. Abroad, the company maintained its presence in the Central and South American markets and in those of North America, Japan and Korea.

**Abeinsa New Horizons**

Hynergreen channeled more than 2 M€ into Research and Development during the year, without taking into account its R&D&i undertakings for third parties.

ZeroEmissions maintained its 23 M€-plus investment in the main international carbon funds: the Fondo de Carbono para la Empresa Española (Spanish Company Carbon Fund), the Fondo Español de Carbono (Spanish Carbon Fund), the Multilateral Carbon Credit Fund, and the BioCarbon Fund. Furthermore, ZeroEmissions was appointed to the governing body of the Spanish Carbon Fund in 2008 for one year to advise the World Bank on matters relating to fund operations.

**Hynergreen**

Hynergreen Technologies, S.A. is the Abeinsa and Abengoa Company dedicated to hydrogen as an energy vector and to fuel cells as electric energy production systems. Committed to the Environment and Sustainable Development, the company offers solutions based on these technologies for different sectors thanks to its continuous R&D&i activities.

In 2008, Hynergreen has increased its 2007 R&D&i investment to move to the forefront of the sectors it operates in. These investments were mainly directly by Hynergreen’s workforce, and also through contracts with the main Public Research Bodies and Universities, both Spanish and international.





Some of the projects fully or partially completed during the year are listed below:

- Project Aquila. The objective of the 24-month project Aquila – completed in 2008 – was to analyze different options for generating electric energy on board airplanes in a distributed and environmentally sustainable manner utilizing different technology fuel cells, and to study the possibility of carrying the hydrogen on board or producing it as it is consumed in the plane itself. The project also analyzed the performance of different devices when subjected to typical aircraft conditions. The project was backed by the Innovation and Development Agency of Andalucía (IDEA) and the Technology Corporation of Andalucía (CTA).
- Project EPiCo. The main objective of the 42-month project EPiCo – completed in 2008 – was to coordinate the research work of the main Spanish companies involved in developing different types of polymer electrolyte membrane (PEM) fuel cells, each of which has been proven in different applications developed to this end. Five partners participated on EPiCo: Ajusa, Cegasa, Cidetec, INTA, and Hynergreen. As integrators, different prototypes were developed at Hynergreen (autonomous systems, battery chargers, etc.) with the fuel cells developed on the project. EPiCo was backed by the Ministry of Science and Innovation, which considered it a Unique Scientific-Technological Project of Strategic Importance.
- Project Hercules. The objective is to establish a renewable hydrogen service station in Sanlúcar La Mayor (Seville), where the hydrogen will be produced from solar energy. A fuel cell powered vehicle that utilizes the hydrogen supplied by the service station is also being developed. With an overall budget in excess of 9 M€, the project boasts the backing of the Innovation and Development Agency of Andalusia (IDEA), and the Ministry of Science and Innovation, which considers it a Unique Scientific-Technological Project of Strategic Importance. Project Hercules is an Andalusian initiative under the global coordination of Hynergreen. The eight promoters of the project comprise five companies, one public agency and two research centers: Hynergreen, Abengoa Solar NT, Santana Motor, Carburros Metálicos, GreenPower, the Energy Agency of Andalusia, INTA and AICIA. The 42-month project got underway in January 2006, and the consortium has been working on developing the prototypes over 2008, with testing thereof being left for 2009.

Of note among the most important lines of R&D&i are the renewable hydrogen production technologies (mainly from biofuels or solar energy – photovoltaic as well as thermal), storage and manipulation thereof (with developments in carbonous and metal hydride structure storage systems), or our auxiliary systems for fuel cells, with power conditioners, controllers, cooling circuits and others.

In order to collaborate on the rapid development of its chosen technologies, Hynergreen participates in various associations and platforms dedicated to promoting the standardization, diffusion and implementation of fuel cells and of hydrogen as an energy vector. Some noteworthy examples during the year were:

- Active participation on the Technical Subcommittee for Standardization of Fuel Cells, which operates under the auspices of AENOR's Technical Committee for Standardization of Electric Energy Production (AEN/CTN206/SC105), where it coordinates several work groups.
- Vice-presidency of the Spanish Hydrogen Association (AeH2).
- Vice-presidency of the Spanish Fuel Cells Association (Appice).
- Presidency of the Spanish Hydrogen and Fuel Cell Technology Platform, which is backed by the Ministry for Science and Innovation.
- Participation on the Advisory Council to the European Hydrogen and Fuel Cell Technology Platform, promoted by the European Commission.
- Participation as a founder member in Industry Grouping which, together with the European Commission, promotes the Fuel Cells and Hydrogen JTI (Joint Technology Initiative).

**ZeroEmissions Technologies**

ZeroEmissions experienced major growth in 2008. Its workforce rose to 40 and it completed the year with subsidiaries in Rio de Janeiro, Beijing, Mumbai and Moscow, and active presence in Brussels, Washington and Rabat.

ZeroEmissions was established in 2007 to agglutinate and direct Abengoa's carbon activity with one specific mission in mind: to offer solutions to climate change by promoting, developing and trading carbon credits; the corporate carbon strategy; voluntary compensation of emissions; and innovation in greenhouse gas reduction technologies.

The consultancy service for emission reduction projects (CDM and JI projects) increased significantly during the year. In addition to the 2007 projects undertaken in China and India, namely at Two Lions chemical plant and Chennai desalination plant, 2008 witnessed the arrival of four other projects in India for the company BMC, and another four in Brazil, two for Dedini Agro and the other two for Grupo Bertin and Cooperativa Lar.



In 2008, ZeroEmissions was appointed by the Government of Morocco to identify potential emission reduction projects in the country, and to develop the PDDs (project design documents) for six of these projects, which will be presented to the United Nations to generate carbon credits.

Training in carbon-related activities is one of ZeroEmissions' major aims, and the company has been working very closely with the Focus-Abengoa Foundation and the International Emissions Trading Association (IETA) to launch the first carbon training course of its kind in Spain: 120 hours over two very intensive weeks that allowed the participants/students to converse with the sector's leading figures and specialists in emission reduction technologies, CO<sub>2</sub> trading, carbon legislation and climate change, among others.

As regards compensation of CO<sub>2</sub> equivalent emissions, ZeroEmissions offset the activities of Telvent's Valgrande headquarters and of the world's largest on-line entertainment event, the 2008 Valencia Campus Party.

During the year, the certification and labeling team developed consultancy services for emissions inventories for external companies such as Mutua Universal.

As regards R&D&i in 2008, ZeroEmissions participated in the "Magnetic Cooling Systems: Optimization of Materials and Design of a Device" project subsidized by the Ministry of Science and Innovation under the National R&D&i Plan. This project has great emissions reduction potential, as the objective is to substitute the HFC gases used for cooling – which also have a high global warming potential – with zero-emission magnetic materials.

Likewise in 2008, ZeroEmissions diversified its consultancy activity with design proposals for sustainable mobility plans applied to trading centers or entire cities.

As regards trading, the company conducted CER/EUA swap transactions over 2008. This swap system allows facilities subjected to emission quotas to optimize their emission rights assignments and obtain additional resources for them.





The company also prepared an inventory of all its greenhouse gas emissions for 2007 to subsequently offset them with carbon credits and thus become one of the first consultancy firms in the world to offer its customers zero CO<sub>2</sub> services.

### **New renewable energies**

In 2008, Abeinsa launched several projects to evaluate the interest and potential of new renewable energy sources. As a result of these surveys, the Ocean Energies Division was established in November. Its objective is to develop technologies that harness ocean wave and current energy.

### **CO<sub>2</sub> capture and valorization**

The year saw the launching of different projects linked with CO<sub>2</sub> capture and valorization. This is an area with enormous potential and will be one of Abeinsa's major activities in the future.

### **Energy efficiency**

R&D&i in energy efficiency is another field Abeinsa will participate in very actively in the future. Work has been carried out in this field for more than a year now and, in 2008, the first project linked with consultancy services in energy efficiency was launched.

## Abengoa and Innovation

## Abengoa and innovation

### Introduction

The existing model of industrial and economic development is not sustainable given the planet's limited capacity to continue providing raw materials that generate value for our economy, and to absorb all the wastes, emissions, discharges, etc. generated by economic activities. Due to this exhaustion of raw materials and saturation of the environment in its current guise as a cesspool for industrial activity, our environment is undergoing great change that is leading to major challenges and opportunities. Abengoa believes in the capacity of technological innovation, research and development as the tools required to change our treatment of the environment and also to put an end to unsustainable production systems. To this end, large investments will have to be made in sustainable production systems. In turn, these investments will be capable of replacing consumption as the driving force behind the global economy in these difficult times.

Global warming must be seen not only as a serious risk to the environment, but also as an element that has a very negative impact on the world economy, where, up until now, the external costs of industrial and economic activity in decision-making processes only received very discreet consideration, meaning environmental and social considerations have only very rarely been included in customary economic criteria.

### Innovation in Abengoa

Research, technological development and innovation are a necessary source of solutions for sustainable development, which is Abengoa's primary objective. Their implementation has been fundamental in positioning the company as a leading figure in the generation of new technologies, processes, and know-how focused on providing innovative environmentally-friendly solutions that not only afford competitive advantages but also generate long-term value. Undoubtedly, technological innovation is a fundamental factor in evolving towards a sustainable world with high quality of life for all countries and individuals. Experts agree that almost 80% of long-term growth in any economy will result from technological achievements.

At Abengoa, we are fully aware that the innovation process is dynamic and responds to a society in constant evolution. It must therefore be tackled from all fronts utilizing all the resources available in the knowledge, science and technology society. As a large company, Abengoa adopts the so-called "innovation ecosystem" and fosters collaboration with universities, government agencies, public research institutions, technology centers and other companies. This is the only way it can generate the required know-how and provide answers and solutions to the new challenges to be faced. This innovation system includes demonstration projects, research and development facilities in different countries and external collaboration agreements.

Most of Abengoa's investment in R&D&i goes on applied research and development of technological innovation focused on attaining strategic sustainability objectives and new products. Abengoa's investment in R&D for 2008 was 84 M€ , up 53.8% on the previous year, which ranked the company 7<sup>th</sup> in the list of Spanish companies investing in R&D, and 246<sup>th</sup> on the European list, according to the EU Industrial R&D Investment Scoreboard 2007. Table 1 shows the evolution by sector of Abengoa's investment in R&D in recent years.

## Abengoa R&amp;D&amp;i Investment

Main Projects	2005 M€	2006 M€	2007 M€	2008 M€
Solar Energy	31.7	17.4	12.9	29.5
Biomass conversion to Bioethanol	13.5	26.2	13.1	19.5
Enhancement Bioethanol efficiency (residual starch)	1.1	1.6	3.4	3.7
Hydrogen Technology	2.7	2.1	1.8	2.0
Electricity, environmental.oil and gas control centers	6.8	7.6	8.5	9.2
Road and nail traffic, and ticketing systems	3.6	5.6	3.9	4.4
Public Administration support systems	2.1	2.2	4.5	5.2
Geographic information Systems (GIS)	2.2	2.3	3.0	3.2
Industrial Waste Management	0.0	0.5	0.5	0.6
Vitrificacion	0.0	0.4	0.1	0.7
Desalination	0.0	1.0	0.8	0.1
Environmental Technology Center	0.0	0.0	0.1	0.8
Treatment of wastewater	0.2	0.4	0.3	0.2
Development of polypropylene	0.0	0.1	0.1	0.2
Other Projects	2.0	1.1	3.0	4.7
<b>Total R&amp;D&amp;i Investment</b>	<b>65.9</b>	<b>68.5</b>	<b>56.0</b>	<b>84.0</b>
	<b>3.3% o/sales</b>	<b>2.6% o/sales</b>	<b>1.7% o/sales</b>	<b>2.2% o/sales</b>

Innovation must create competitive advantages for Abengoa, and these must be measurable and quantifiable through different indicators.

The most common indicators utilized for R&D assessment are:

#### Investment "Input"

- costs (capex, opex) obtained from in-house financing and public grants,
- human and material resources at the service of R&D&i,

#### Results "Output"

- increase in productivity,
- increase in production,
- reduction of costs,
- improvement of quality,
- increased Cash Flow,
- appropriation of differential results,
- generation of industrial and intellectual property rights,
- marketing of new products,
- increase in revenue attributable to the innovation,
- incorporation of the new knowledge and know-how gained during development of the technological innovations,
- enhancement of market image (visualization of intangible assets in economic, social and environmental aspects).

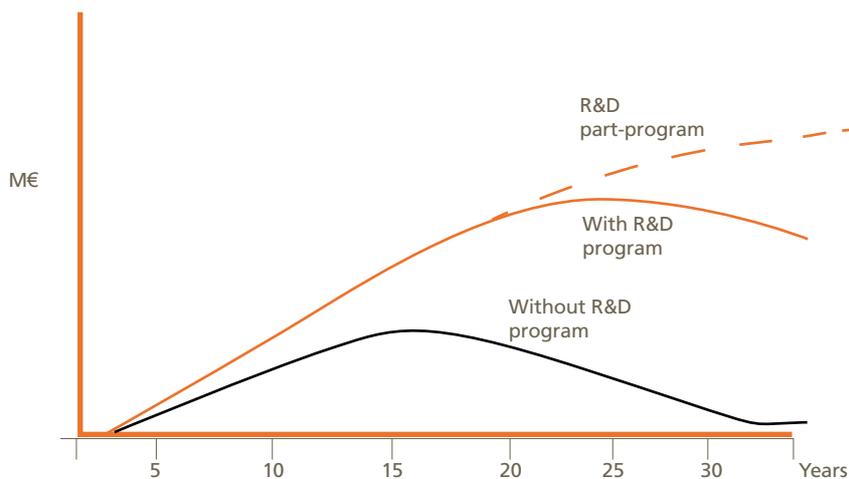
Evaluation of innovation at Abengoa is based on broad lines of research, technological development and innovation geared towards a generic product (desalination plants, bioethanol facilities, hydrogen fuel cells, etc.).

The top graph shows the increase generated in sales of a generic product thanks to the implementation of R&D programs to produce it, and incidence on its costs. When there is no R&D program, the products or services become obsolete after a certain time period due to rapid changes in the market. With investment in R&D, their lifetime is lengthened by incorporating the improvements obtained through research, which optimize the performance of the product or service in question.

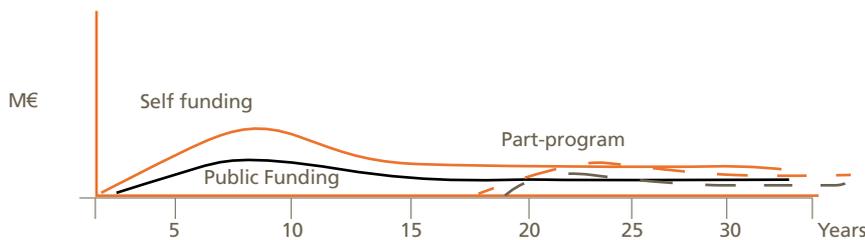
R&D&i projects must be aligned with Abengoa’s strategy and their exploitation must be long-term (up to 30 years). They must likewise be undertaken in partial programs (10 years) and specific projects (3 to 4 years).

The bottom graph shows a possible financing option for a specific product or service by combining public and private funding, with the inclusion of a partial program.

Products generated revenue



R&D costs



### Abengoa and its commitment to sustainability

On the basis of its innovation policy and strategy, Abengoa, together with all its business units, places its trust firmly in sustainable harnessing of resources and raw materials throughout their entire lifecycle. Each one of Abengoa's business units conducts different technology innovation projects to this end.

Abengoa is an undisputed leader in technological development in the field of energy production from renewable energies. Abengoa Solar works on producing electric energy by replacing conventional sources with renewable sources such as solar thermal or photovoltaic energies. It also works on developing technologies that allow energy storage.

Abengoa Bioenergy produces biofuels to replace traditional fossil fuels. Hynergreen develops new systems for hydrogen production utilizing renewable sources, and for the use of hydrogen in latest generation fuel cells. Inabensa focuses on implementing improvements in energy efficiency and on CO<sub>2</sub> capture and valorization programs.

The promotion and implementation of these technologies for energy production based on renewable sources and energy efficiency are part of a new sustainable development economy, and will help to curb greenhouse gas (GHG) emissions while breaking the stranglehold of more traditional sources. It will also free states from the usual geopolitical pecking order imposed by the owners of these traditional energy sources, which is linked to current causes of insecurity and scarcity of supply.

Likewise, Abengoa, through its Environmental Services Business Unit, with Befesa as the parent company, provides integral water cycle and industrial waste management solutions.

Telvent, the Business Unit dedicated to Information Technologies, conducts development and innovation activities focused on being able to offer its customers innovative solutions that contribute to sustainability and security via technology.

## The business units and technological innovation

### Abengoa Solar

Upgrading existing and developing new technologies are a priority for Abengoa Solar. The objective is to offer technologies capable of generating clean energy at a cost that is competitive with fossil fuels, while taking the cost of emissions into account.

To this end, an ambitious research and development plan has been established. This plan will allow the company's investments, together with those of other institutions and companies in the sector, to meet this goal. Abengoa Solar's effort is channeled through a team of more than 60 professionals at Abengoa Solar New Technologies (with research centers established in Sevilla and Madrid, in Spain, and Denver, in Colorado, U.S.A.), who are researching the two large suites of priority technologies photovoltaic and high temperature solar thermal energy. Throughout 2008, this team continued to grow and develop its capacities in the main areas of research, while strengthening its partnerships with the world's leading institutions (Ciemat in Spain, NREL in the US, and DLR and Franhoufer in Germany) and also building pilot facilities that allow them to test new technologies under real operating conditions.

The R&D&i carried out by Abengoa Solar is based on four stages:

- Stage 1, where the project is specified and preliminary research activities conducted.
- Stage 2, where theoretic analysis and modeling of the solution is carried out.
- Stage 3, where a prototype or demonstration plant is built.
- Stage 4, where the demonstration system is analyzed and validated prior to commencement of the commercial stage.

In 2008, several projects entered stage 3 and even stage 4, meaning we can expect significant advances in forthcoming years. Furthermore, Abengoa Solar was highly successful in obtaining grants from public institutions worldwide for the groundbreaking R&D projects it is launching:

- In Spain, Abengoa Solar will head – for 4 years – the CENIT Consolida project which, with a 24 M€ budget, aims at developing more efficient solar thermal technologies for electricity production.
- In the US, the company has been awarded Department of Energy grants for two R&D projects focused on storage technologies. These can now be added to the three projects for which grants were awarded towards the end of 2007 and on which activities commenced in 2008.
- The European Union also awarded a grant to the Abengoa Solar led Solugas project aimed at developing new high temperature power towers.

All the above allows Abengoa Solar to undertake its three major R&D&i challenges with renewed optimism:

1. To develop solar thermal technologies capable of producing electricity at large plants at prices able to compete with fossil fuels. Two of these projects are already at stage 3 and will progress to stage 4 in 1Q 2009.
  - The high temperature power tower with superheated steam. Following several years' work, the 2 MW pilot tower at the Solúcar Platform has been completed. The tower was built from the experience gained from the PS10 and PS20 power plants and will allow the company to test the second generation of towers, which produce superheated steam and will become vastly more efficient when the technology becomes commercial.
  - Parabolic trough collector with direct steam generation. A pilot plant using this brand new technology has also been constructed at the Solúcar Platform. This will allow the company to reduce construction costs while increasing efficiency of the system compared to the oil technology currently in use. In addition, work has been ongoing on upgrading the technologies associated with parabolic trough plants with the first pilot oil plant outside the United States. This facility has allowed us to optimize the technology we employ at the Solnova 1 and 3 plants, and also at newer plants, and to pinpoint possible improvements to the optics and components, such as support structures, mirrors, ball joints, flexible joints and pipes. Moreover, work was conducted on the design, testing and validation of new parabolic troughs. In Spain, Abengoa Solar developed the ASTRØ collector, which leads to significant reductions in manufacturing costs and time, simplifies transportation needs and enables ease of assembly while reducing assembly costs on-site. Several designs were initially put forward, two of which were eventually selected for the prototype manufacturing stage. After both were duly tested on a test bench at our participated company Eucomsa, one was selected as the reference design.

Meanwhile, in the United States, another more efficient collector is being developed, in collaboration with the NREL, based on the collectors currently utilized for industrial facilities. Also in development are advanced reflective materials and the use of new heat-bearing liquids in parabolic troughs combined with thermal energy storage.



**Solar platform with installations employing diverse technologies**

Abengoa Solar's efforts in R&D also include other energy generating technologies, where the company has focused on the design and construction of several Stirling dishes at the Solúcar Platform. This will enable it to gain direct experience in designing, constructing and operating this technology in order to validate its potential for the future. Modularity is the advantage of Stirling dishes. They can be utilized for distributed generation, largely due to the fact that they do not require a turbine to operate. Nevertheless, their current cost is much greater than that of the other technologies.

2. To develop efficient energy storage systems. Energy storage is essential to increase availability from solar thermal power plants: it improves the annual capacity and efficiency of the energy conversion cycle, thereby reducing the number of plant start-ups. High-temperature solar thermal energy has the great advantage over other renewables in that it can be stored and is therefore manageable – either by hybridization with other energy sources or through the use of storage systems. One of the priorities is to test and develop new technologies for energy efficient storage systems. The company is currently working on two key projects in this line:

- Molten salt storage system based on sensitive heat. Abengoa Solar has completed construction of a pilot plant that will allow it to validate, measure and optimize these types of systems for subsequent commercial use.
- New latent-heat thermal storage systems. Several projects are currently at stage 1 and will lead to new more efficient and less costly systems in the future. Abengoa Solar has worked, together with several research centers, on a project to develop new energy storage technologies applicable to solar power plants. On this project, work has been conducted to validate technologies close to commercialization, and also on technologies that will require significant development over forthcoming years. One of the most promising concepts on which Abengoa Solar has been working in recent years has been storage via phase change latent heat (PCM).

3. To develop lower-cost distributed photovoltaic systems. At present, photovoltaic technology is more costly than high temperature solar thermal but, in the future, it could become a very efficient means for distributed generation needs or for small or medium-sized power plants. This is why it is vital for Abengoa Solar to contract and develop efficient photovoltaic technologies. The company is currently working on low, medium and high concentration photovoltaic systems. More specifically, we have analyzed production from several concentration systems installed at the Solúcar Platform, including low concentration and high concentration systems by disc and by point focus systems. We have also rolled out a research program focused on developing the concentration systems of the future.

In 2008, a photovoltaic laboratory was set up to test and measure the performance of all types of photovoltaic system under real operating conditions while utilizing different tracking systems. The aim of the project is to create an experimental tool with which to analyze energy production costs by employing different technologies and configurations, prevent and resolve problems during the life-cycle of the photovoltaic systems, and identify the optimum technology and configuration for different types of facilities. The photovoltaic laboratory is located at the Solúcar Platform and possesses the infrastructures and equipment required to measure and characterize photovoltaic devices and systems.

2008 was a crucial year for consolidating R&D&i in solar energy by strengthening human and material resources, capacities, collaboration activities and partnerships. Funding for new and important projects was obtained and decisive headway was made in others. 2009 will be a key year in which we must continue to advance the company's main objectives and to guarantee a future with clean and efficient energies from the sun.

### Abengoa Bioenergy

The mission of Abengoa Bioenergy New Technologies is to develop and demonstrate technological solutions through science and innovation to meet the objectives established in Abengoa Bioenergy's strategic plan, which includes:

- Developing and commercializing biomass technologies at competitive prices.
- Increasing the added value of existing co-products and developing new co-products.
- Upgrade existing dry mill technology.
- Fostering the development of energy crops.
- Developing the biomass market.
- Developing end-use programs for biofuels.

For the use of new raw materials as carbon sources, efforts are focusing on enzymatic hydrolysis and catalytic gasification processes.

As regards gasification and catalysis, work continued on the thermochemical technology development program for biomass to bioethanol conversion and quite promising intermediate results were achieved in both analysis and proposal of process configurations and in research into heterogeneous catalysts to convert synthesis gas into ethanol and alcohols. The company also explored different opportunities for demonstrating biomass gasification technology on an industrial scale, for steam and electricity production, or to be combined with solar thermoelectric energy facilities for valorization of both forest biomass and energy crops.

In 2008, Abengoa Bioenergy worked to develop, evaluate and validate new processes to revalorize the co-products obtained from cereal grain-bioethanol production processes, thereby enhancing nutritional values.



Enzymatic hydrolysis biofuel demo plant in Castilla y León.

Improvements have also been made to the bioethanol production process at the pilot plants, resulting in an increase in ethanol/cereal performance. At the same time, new enzymes are being experimented with to assess any improvements in performance and reduction of impacts to be had.

Raw materials represent between 60% and 70% of biofuel production costs and, during their life cycles, between 30% and 40% of greenhouse gas emissions, according to JRC data. Abengoa Bioenergy has therefore developed programs aimed at reducing the economic and environmental impact of raw materials destined for biofuel production, and at identifying and developing alternative species for the use of first and second generation production technologies. In addition, it has launched programs to evaluate the potential of other resources such as forest, industrial and agricultural wastes, and the use of different varieties of cereal obtained from different types of seeds. Simultaneously, the company is looking into and evaluating new ways of collecting and supplying large quantities of biomass to the processing plants.

Well aware of the environmental benefits of the use of biofuels, the company is conducting demonstration programs to promote the use of e85 and e95, and studies on ethanol-diesel mixture to develop stable blends that meet the requirements of petrol and diesel engines. These demonstration programs for new applications of ethanol as the end product have focused on implementing the use of ethanol-diesel mixture (or e-diesel) in captive fleets of heavy vehicles: buses and worksite machinery. Fuel analysis has focused strategically on obtaining knowledge of the stability of blends, performances under engine bench testing and durability of the engine components when e-diesel is utilized.

Another concept the company is focusing on is Biorefining, with which products with market value will be obtained from biomass. At present, the company is developing the conceptual model and conducting market studies into the potential products. Given the consumption required to obtain ethanol from biomass in its different forms, to

carry out the biorefining processes we have launched projects to select suitable enzymatic blends and to design the engineering process required to obtain ethanol on site at the production plants.

To increase business sustainability, work has commenced on evaluating the potential of using photosynthetic organisms (microalgae and cyanobacteria) as CO<sub>2</sub> capturers. Likewise, the company is evaluating the potential of biomass generated for use as a raw material for biofuel production and the potential for use of these organisms to produce other high added value metabolites.

The most important projects are listed below.

### Project I+DEA

Abengoa Bioenergy New Technologies (ABNT) heads this multidisciplinary consortium whose main objective is to generate knowledge for utilization of ethanol as fuel.

The specific objectives included in the project are:

- Development of energy crops for existing and second generation technology.
- Development of enzyme blends for the enzymatic hydrolysis process that reduce the impact of this stage on the total cost of manufacturing.
- To make significant progress on ethanol synthesis catalysts.
- Complex process designs and in-depth analysis.
- Analysis of stability of blends, performances and durability of engine components.
- To demonstrate the use of e-diesel in bus and machinery fleets, as well as on-board metering of emissions.
- To initiate development of new applications: burners, marine and high load and motorcycles/mopeds.
- Development of regulations governing tank design and soil remediation following ethanol spills.

### Biosynergy

The Biosynergy project is geared towards using biomass for synthesis of bioproducts (chemical or material) and producing secondary energy carriers – transport fuels, energy and/or CHP – through development of biorefining. The research is focused on advanced and innovative development of fractionation and conversion processes, combining biochemical and thermochemical pathways, and on developing the process from laboratory scale to pilot plant scale.

The objective of Abengoa Bioenergy's activities is to generate the data required to assess the different options for physical or chemical fractionation of the pretreatment of the pretreated feedstock and the post-treated materials. This data is required to configure the process under development and to select appropriate equipment for the biorefinery. The activities also include development of a conceptual plan for a biorefinery that converts energy crop agricultural waste into ethanol and high added value co-products.

Main milestones reached:

- Evaluation of some of the biorefining concepts under consideration using technical, economic and environmental criteria.
- Study of the main bioproducts that can be produced from the different fractions of the biomass.
- Techno-economic analysis of different pretreatment options.

### Singular Strategic Project (SSP) involving energy crops

Abengoa Bioenergy, Ecoagrícola and ABNT are participating in this project launched by the Spanish Government

to develop energy crops for different applications (heat, electricity, and biofuels). The consortium comprises many different partners from the energy sector.

Milestones reached:

- External repercussions associated with the use of cereals as energy crops.
- Development of a tool capable of identifying the cereal consumed in ethanol production facilities and associating them with GHG emissions along the production and supply chain.
- Selection of the first batch of cereal varieties optimized for ethanol production.
- Agronomic development of Jerusalem artichoke and sweet sorghum (cultivation techniques, periods and harvesting techniques, sugar yield, etc.).

### Project Hybrid

Abengoa Bioenergy New Technologies is heading the execution of this project. The main objective is to design, construct and operate the 100 Mgal commercial biomass and starch hybrid plant.

The specific objectives of the project include:

- To demonstrate commercial feasibility of the biomass to ethanol conversion process.
- To prove that the technologies developed are adaptable to existing and future plants.

The subsidiary ABNT has been selected to design, construct and operate the US DoE's large pilot biorefinery. A grant from the DoE will partially fund the project. The biorefinery will be located next to a starch ethanol plant, forming a hybrid complex in Hugoton, Kansas, U.S.A..

The conversion capacity of the biorefinery will be at least 700 t/day and will consist of two processes: Enzymatic Hydrolysis (EH), and Gasification. The EH process will convert biomass (400 t/day) into ethanol, lignin, and animal feed. The Gasification process will convert 300 t biomass/day into syngas which will be combusted to generate steam. The steam will be utilized in the biomass plant and any excess will be sold to the adjacent starch plant.

Milestones reached:

- \$38 M grant secured from the DoE for phase 1 of the contract.
- Personnel and offices contracted for the project.
- Property and water contracts signed.
- Pro-forma approval secured for the starch/biomass hybrid plant.
- Project pre-construction and EPC program approval secured.
- Enzymatic hydrolysis and gasification simulation models completed.
- Selection of the starch technology.
- Appointment and contracting of architectural and engineering consultants.

### New projects

#### Project Bioref-integ

The purpose of project Bioref-integ is to study and develop biorefining concepts utilizing existing fuel producing industrial complexes in order to increase their competitiveness via co-production of new products. Within the project, different market sectors are analyzed: bioethanol, biodiesel, pulp/paper, oil refining, energy production,

the food industry and the agricultural sector. Evaluation of the biorefining concepts developed under the project includes assessment of the technology, as well as an economic analysis and study of emissions.

The objective of Abengoa Bioenergy's activities is to provide support for projects to identify existing industrial complexes in the bioethanol sector and potential products that might be co-produced at such complexes, and also to develop biorefining simulation models integrated into the bioethanol sector.

### SOST CO<sub>2</sub>

This project is financed by the CENIT program (Ministry of Industry, Tourism and Trade). Coordinated by Carburos Metálicos (Air Products Group). General aim: to develop sustainable technologies for utilization of CO<sub>2</sub>. ABNT is to collaborate with the Polytechnic University of Valencia, Seville University, Cener and Inabensa. ABNT's specific project objectives are:

- To develop the selective catalysts for hydrogenation of CO<sub>2</sub> for ethanol synthesis.
- To develop the process to produce ethanol from CO<sub>2</sub> and renewable hydrogen.
- To produce microalgae utilizing CO<sub>2</sub> from fermentation, for use as biomass.
- To evaluate the life cycle of the proposed alternatives and their impact on the life cycle of existing ethanol from cereal grain production technology.

### Befesa

R&D&i strategy at Befesa is focused on obtaining results and the creation of value by developing new technologies, with sustainable development in mind at all times.

The objectives of Befesa's R&D&i strategic plan are:

- To lead the way and be technologically competitive in the aluminum and steel waste recycling industry.
- To develop new technologies for industrial waste management.
- To lead the way in desalination technology and be technologically competitive in wastewater treatment and in water reuse.

In the aluminum waste recycling business unit, R&D&i activities seek to enhance performance in recovery of raw materials and aluminum waste, optimize the operation processes and quality of the products, and develop new and better technologies that contribute to sustainable development.

The R&D&i projects developed by the steel and galvanization waste recycling business unit focus on design and construction of facilities that allow optimization of process performance, as well as research aimed at discovering new uses for the materials recycled by Befesa.

The integral industrial waste management area focuses on developing new technologies to adapt to constantly evolving environmental legislation, prioritizing the management methods based on a hierarchy marked by reuse, recycling and valorization as against disposal treatment processes, diversifying towards new environmental markets and increasing the number of treatable wastes.

In the water division, Befesa's R&D&i centers on optimizing the energy efficiency of desalination processes, reusing wastewaters, minimizing process costs and environmental impact and upgrading hydraulic infrastructures.

The array of R&D&i investments and programs have been rolled out to attain the objectives established in the strategic plan:

1. In aluminum waste recycling, R&D&i projects seek to enhance the quality of the molten salts while minimizing salt slag production: improve aluminum casting and automation on the ingot lines; optimize salt slag recycling to increase process productivity and minimize costs; and lastly, develop projects aimed at adding value to Paval as a market product.
2. The R&D&i department will use the experience gained from the steel waste recycling plants to design and construct new more efficient steel powder treatment facilities. This will not only include metallurgic and economic aspects but also the environmental impact of these activities. Another important line is the development of new steel powder recycling activities that will enable us to develop new products for the construction and cement industries.
3. Befesa's industrial waste management projects seek to reduce disposal treatment processes by promoting energy recuperation and valorization, and to strengthen the company's technological leadership in industrial waste management by means of environmentally sound and energy efficient treatment processes.
4. Befesa Agua's projects are intended to optimize and develop reverse osmosis desalination; to develop treatment technologies for urban and industrial wastewaters to allow their regeneration; to develop supercritical oxidation technology that is for eliminating sludge generated in water treatment and potabilization processes; and lastly, to upgrade hydraulic infrastructures in line with sustainability criteria for the integral water cycle.

Befesa's R&D&i program includes the construction of an Environmental Technology Center for research into environmental technologies related with water treatment and industrial waste management. It will be equipped with everything required to allow Befesa to carry out its R&D&i. It is a sustainable center, not only because of the activity that will be carried out there, but also because it is being designed and constructed under sustainability criteria, with mechanisms to neutralize the CO<sub>2</sub> emissions produced during the center's life cycle. It is scheduled to be brought into operation in 2009.

The most important R&D&i projects of the different business units are detailed below.

### **Aluminum waste recycling**

Development of aluminum recycling techniques. New process to enhance the technology:

This project involves three processes: the objective of the first is to analyze and study the behavior of the fluxes in aluminum smelting processes; the rotary furnace has been used for such purpose, numerous smelting tests have been conducted and improvements for treatment of the furnace gases have been incorporated; the second process is to study the reactivity of salt slags, which is being developed in collaboration with the University of Valladolid, the aim being to predict, by computer, the advance of the reaction of the salt slags and to confirm that the model works with a pilot plant; lastly, work was conducted on harnessing the energy of the steam boiler gases and obtaining the corresponding energy savings. This project aims to save natural gas utilized at the plant to produce steam and for drying the salts and Paval.

### **Steel and galvanization waste recycling**

New products from treated waelz oxide (D-L.W.O.<sup>®</sup>). Work continued on the lines of research initiated in 2007 for lixiviation of treated waelz oxide (D-L.W.O.<sup>®</sup>) with other lixivate agents, both acid and basic, other than

baker's salt to obtain high-purity (99.99%) zinc oxide (ZnO) and other new higher added value products such as zinc metal. The conclusion reached is that the results from the acid-based lixiviation tests are much more promising and, therefore, future research work will focus on this line.

**Industrial waste management**

Energy valorization of WDF (waste derived fuel), R&D&i work carried out in previous years has led to the attainment of a waste derived fuel – Comat – designed originally for cement manufacturers, and its declassification as a hazardous waste. This opens the doors to other possibilities of energy valorization in less energy intensive thermal processes that satisfy existing regulations governing waste valorization. The project, initiated in 2008, aims to pinpoint the technical innovations required to valorize energy from Comat in conventional solid fuel boilers and to adapt to the European Union's recently approved legal framework.

The exploitation of energy from waste, the objective of the project, will allow sustainable development in the waste sector by recovering the energy content of waste while curbing consumption of non-renewable primary resources.

**Water**

High efficiency pilot desalination plant project. The objective is to reduce the desalination energy consumption to values below 2.5 kWh/m<sup>3</sup> of produced water. To this end, the company has conducted studies and developed the reverse osmosis membranes and energy recovery systems. Enhancements have also been made to the process to minimize energy consumption. The project has received grants from the Department of Innovation, Science and Enterprise of the Regional Government of Andalucía, and from the Ministry of the Environment and Rural and Marine Affairs.



**Befesa Water. High-efficiency reverse osmosis desalination pilot plant**



**Befesa Water. Advanced pre-treatment systems pilot plant.**

Elimination of WWTP (Wastewater Treatment Plant) sludge through supercritical oxidation. The objective is to demonstrate the technical and economic feasibility of supercritical oxidation technology for elimination of WWTP sludge. A pilot plant has been constructed for this purpose. The project is being subsidized by the Department of Innovation, Science and Enterprise of the Regional Government of Andalucía, the Technology Corporation of Andalucía and the Ministry of the Environment and Rural and Marine Affairs.

## Telvent

One of the main tools for Telvent strategy deployment is investment in research, development and innovation to create technological solutions.

Of the numerous lines of research active in 2008, the following were especially noteworthy:

### Energy

Telvent's technological strategy for the utilities sector is to be found under the title "Smart Grid Solutions Suite" (SGS). Three areas are analyzed from a global and integrated solution point of view: "Smart Network", "Smart Operations" and "Smart Metering". Telvent offers solutions based on its traditional products together with new products for substation automation.

Among other advantages, SGS provides grid energy efficiency, improves consumer service, reduces frequency and duration of outages, and provides previously unavailable possibilities for smart management of demand.

Smart Grid focused research activities conducted in 2008 included:

- Continuation of project Denise by a powerful consortium from the Spanish electric sector focused on researching smart distribution networks.
- Project Cariel, which researches the use of high-speed communication network substation control systems.
- Development of solutions by Telvent DMS for complex management of outages and clearing of incidents integrated into Responder (OMS).
- Securing of the IEC 61850 Standard Conformity Certificate issued by Kema Consulting, which includes interesting new features and represents a new concept of information organization at substation level, allowing more efficient real-time handling of the information required for operation of the electric network.

### Transportation

Development of solutions for urban and interurban road traffic and rail traffic, noteworthy among which are: Traffic Control Systems (MIST), with extensions for centralized and distributed adaptive control (Itaca, OPAC), traffic regulators (RMY, RMB, and RBY). Centralized Traffic Control railway systems (CTC based on OASyS) or Traffic Data Systems (SmartNET).

Development of Toll, Ticketing, and Parking System management solutions, noteworthy among which are: Toll network management systems (SmartToll), Ticketing management systems (Mobifast) for railway and metro networks, Ticketing management systems (ValTick) for road transportation, and Parking space control management systems (Web.Park). Solutions were also developed for "Open Road Tolling" systems aimed at preventing traffic congestion.

As regards innovation in Enforcement systems, which has achieved excellent results in reducing road accident figures, a significant effort was made in 2008 on technical integration and on developing a complete driving offence detection, capture and management solution.

In addition, project ViaSens was set up to obtain useful roadside information for improving mobility and safety in areas where, up until now, this has not been viable due to the need to invest in costly infrastructures. The overriding purpose of the research is to develop low-cost sensors and make use of low broadband communication infrastructures.

### Environment

The objective in this field is to develop advanced technological solutions based on Information Systems, allowing us to meet the challenges of sustainability head on.

In 2008, we completed development of the cloud height sensor (ceilometer) – Cirrus 100 Ceilometer. This is essential for weather observation at airports and is now included in Telvent's catalogue of aeronautical meteorology products together with the Revolver transmissometer.

Work on project Terwis 2 was also completed. This is a Road Weather Information System that includes a tool to help decision making (MDSS) on efficient use of resources, while improving road transportation safety.

Through the Tesemat initiative, a weather forecasting software platform has been designed jointly with Abengoa Solar. This allows for advance knowledge of the energy generated by a solar power plant, thereby enabling more efficient and sustainable plant management. The project received a Ministry of Industry, Tourism and Trade grant.

Also of note is the RESTE platform which, by combining real-time information on air quality, meteorology and traffic, as well as predictions of the same parameters obtained with modeling tools, will allow for more global traffic management taking in account variables such as speed, driving conditions, routes followed, etc., with an emphasis on sustainability and emissions reduction.

### Public Administration

Public Administration R&D&i activity is geared towards two aspects, a strategic line of Security R&D focused on aspects related with immigration management and document control, and another strategic line – eGovernment – focused on electronic signing and billing.

Of the many innovative initiatives conducted in 2008, we would highlight projects such as INTEGRA (Research into Technologies for Migration Management), the main objective of which is to develop, against the backdrop of the Ministry of Industry, Tourism and Trade's CENIT program, technologies applied to migration management (Management=Prevention+Control+Integration), focused on solving real problems detected by the end users.

In 2008, thanks to the grant and loan from the Ministry of Science & Innovation, work continued on the development of the Identica project, the main objective of which is advanced identity verification through biometry and personal documentation in secure environments, thereby responding to the current need of unequivocally proving an individual's identity by verifying his/her physical presence.



Telvent Energy presentation at an international conference.

The Globe (European Global Border Environment) initiative is part of the strategic e-immigration line of activity established by the European Commission. It sets a series of Institutional objectives, thereby establishing an integral command framework for taking strategic decisions (policies and procedures) and operative decisions (tactics) from the Information. Standardization and Integration Systems (Identification of users, Identification and analysis of information sources and systems, Identification of needs, and Design of the integrated solution), and also Technological objectives. New, scalable and reliable solutions were developed over the course of the year.

### Healthcare

In the field of Healthcare, R&D&i for 2008 focused primarily on the technological areas of hospital information system management processes, the medical processes of managing and handling multi-modal (CAT, MRI, etc.) medical imaging, and on the management of multiple sources of information on personal, environmental, position and distributed location parameters in order to provide solutions in relation to the health and well-being of people with chronic health issues or those who are dependent based on all of the information gathered.

The MIND project is one of the initiatives undertaken in 2008 in the healthcare area. This project, within the framework of the CENIT program attached to the CDTI, focuses on research and integration of knowledge from numerous biotechnological areas, essentially medical imaging and omics (genomics, metabolomics and spliceomics), as well as tutoring in assistance procedures through advanced management of interdisciplinary knowledge. The objectives of the project involve the paradigms currently defined in medical practice and research, which, in the case of Alzheimer's disease (the key objective of the project research), require a globalized and parameterized perspective of the basic environment in the life and circumstances of patients and their caretakers.

In 2008, the PMAI (Image-Assisted Medical Processes) initiative, which began life in 2006, succeeded in developing the medical image integrated viewer in 2-D and 3-D for flexible application within the TiCares suite for planning and executing invasive medical procedures, such as radiation therapy or surgery.

Thanks to funding obtained from the CTA, development continued in 2008 of eQECM (eSurgicalSuite: Multimedia Collaborative Environment), which was undertaken in 2006 to plan the development of functionalities associated with the e-SurgerySuite or Intelligent Operating Room, which is essentially the strategic control center for clinical activities involving invasive procedures.

Along the same lines, the PPC-RFID (Critical Process Patients – Radio Frequency IDentification) projects involve the development of a computer solution for automatic and continuous identification of the agents involved in clinical processes, patients and medical professionals. During the second phase, new modules have been developed, enabling the supply of automatic and continuous information on the location of people and material components. The SIMFO (Forensic Multimedia Information System) research project encompasses a global set of solutions for optimizing all stages and scenarios in medical-forensic activity involving the presence of the human body.

Finally, we must again point out the Nuadu project, involving collaboration on a European level within the framework of the Eureka-ITEA program, and subsidized by the Spanish Ministry of Industry, Tourism and Trade. The project tackles the technical risks in providing a residential ambient intelligence environment, and mobility for services in the area of health and well-being with the aim of improving the quality of life of users through effective and efficient solutions from service providers. The activities carried out through this project over the course of 2008 enabled the development of networked component architectures for constant remote monitoring of people with healthcare needs based on obtaining data from sensors employing off-the-shelf communication technologies (RFID, ZigBee, Bluetooth, etc.), as well as new emerging technologies.

### Abeinsa

Abeinsa's R&D activities center on high potential areas such as hydrogen, energy efficiency and new renewable energies.

Most research and development activities are articulated through Abeinsa New Horizons, Abeinsa's project incubator that centralizes the R&D efforts. This incubator includes:

- ZeroEmissions, a company dedicated to emissions management of CO<sub>2</sub> and other greenhouse gases.
- Hynergreen, a company focused on developing hydrogen and fuel cell technologies. This involves significant synergies with other Abengoa areas, such as:
  - R&D in new renewable energies: generation of renewable hydrogen.
  - R&D in energy efficiency: utilization of fuel cells.
  - CO<sub>2</sub> capture and storage: generation of non-renewable hydrogen without emissions.
  - Inabensa: installations linked with hydrogen technologies.
  - Abengoa Solar: hydrogen produced with solar energy.
  - Abengoa Bioenergy: bioethanol reforming.
- Capture, storage and valorization of CO<sub>2</sub>.
- Energy efficiency.
- New renewable energies, such as ocean wave energy.
- Other projects, such as characterization of biomass for bioethanol production.

The level of maturity of each of these lines of research determines its status within the company. Thus, some fields have become companies, as in the case of ZeroEmissions and Hynergreen, whereas some are divisions within other companies, and others are simply projects at the embryonic phase.

Some of the projects undertaken, partially or in full, by Abeinsa's different subsidiaries in 2008 are listed below:

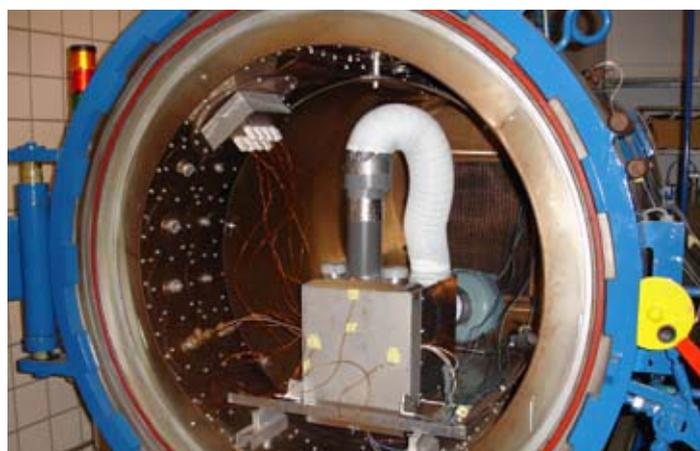
### Project Hércules

The objective is to establish a renewable hydrogen service station in Sanlúcar La Mayor (Sevilla), where the hydrogen will be produced utilizing solar energy. A fuel cell powered vehicle that utilizes the hydrogen supplied by the service station is also being developed. The overall budget for the project is more than 9 M€ . It is receiving backing from the Innovation and Development Agency of Andalucía (IDEA), and the Ministry of Science and Innovation, which considers it a Singular Strategic Scientific-Technological Project. Project Hercules is an Andalusian initiative globally coordinated by Hynergreen and promoted by eight partners, comprising five companies, one public agency and two research centers: Hynergreen, Abengoa Solar NT, Santana Motor, Carburos Metálicos, GreenPower, the Energy Agency of Andalucía, INTA, and AICIA. The 42-month project commenced in January 2006 and, in 2008, the consortium worked on developing the prototypes, with testing thereof being left for 2009.

### Project Electra



**Trials in the testing station at the Hynergreen laboratory**



**Inabensa. BCRU aviation electronic converter project (autoclave thermal trial).**

The objective of this project undertaken by Inabensa is to design, develop and evaluate a prototype of a matrix converter for use in distributed generation, with the possibility of stand-alone operation or connected to the utility's grid.

The main application of the matrix converter is conditioning of the energy from microturbines without the need for a direct current intermediate circuit. In this way, alternating energy with a certain frequency and voltage is converted directly into another alternating energy with a frequency and voltage suited to a specific application (AC-AC). This project could open the door to the use of these types of converters in other types of distributed generation technologies.

### PSE CO<sub>2</sub>

The objective of this project is the study of advanced CO<sub>2</sub> generation, capture and storage technologies. It includes sub-projects dedicated to studying different technologies: CO<sub>2</sub> separation technology in precombustion, CO<sub>2</sub> capture by oxycombustion, geological storage of CO<sub>2</sub>, and acceptability and governance in CO<sub>2</sub> storage processes.

### Project NanoGLOWA

Project NanoGLOWA, "Nanomembranes against Global Warming", aims at developing new materials based on Nanotechnology for use in membrane-based separation and purification processes. In particular, the aim is to demonstrate its feasibility in gaseous effluents from thermal power plants as an alternative to reduce CO<sub>2</sub> emissions.

In this project, Inabensa is providing the necessary industrial engineering work to bridge the gap between the new materials and their industrial feasibility within the electric sector.

The project is to run for 5 years, from 2006 to 2010. Its global budget is more than 13 M€ , and funding is from the European Union under the 6<sup>th</sup> Framework Program for Research (NMP3-CT-2007-026735).

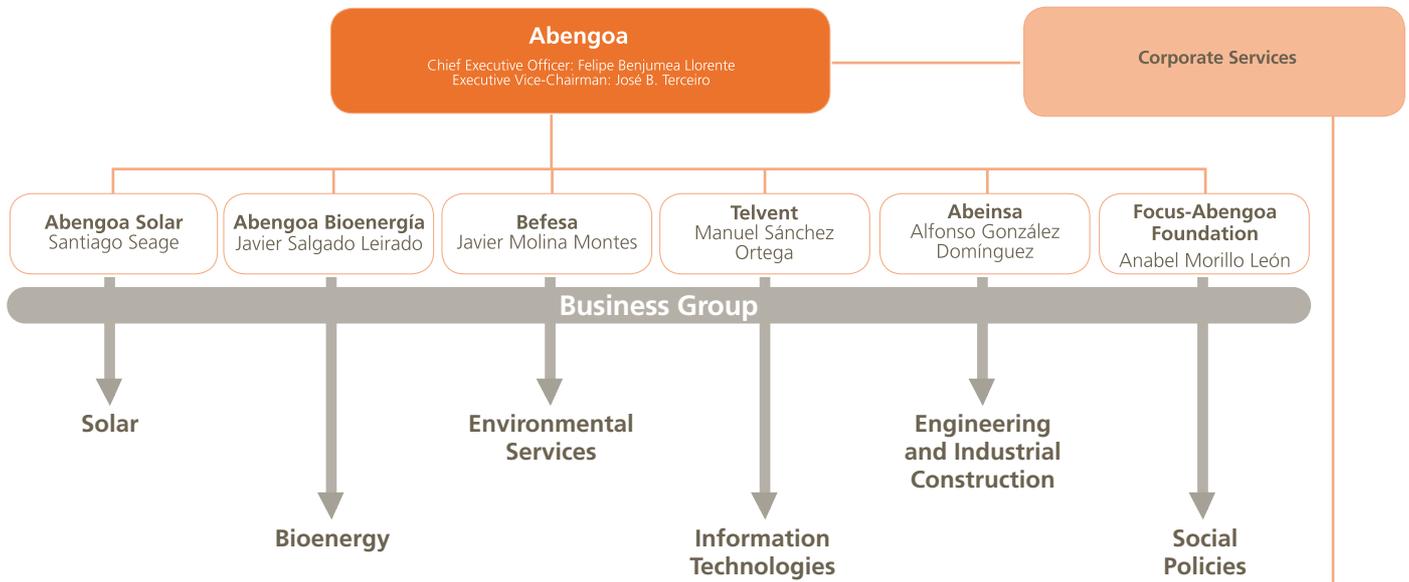
### Project mIO!

This project, on which Inabensa's Communications Division is participating, is partially financed under the CDTI's (Center for the Development of Industrial Technology) CENIT program.

The objective of project mIO! (technologies for providing mobility services in the future intelligent universe) is to realize technologies enabling us to provide ubiquitous services in an intelligent environment adapted to each individual and to his/her context, using mobile handsets as the basic tool for interaction with services provided by companies and with microservices created and provided by the mobility users themselves, in areas as diverse as:

- Mobility services technologies created and provided by individuals.
- Interface access technologies.
- Context and personalization management technologies.
- Mobility services technologies created and provided by companies.
- Communication and connectivity technologies.
- Support techniques for the frequent transfers resulting from nomadism in an environment with intelligent infrastructures, new capacities and services deployment models via NGN and IMS architectures, etc..

## Organizational Structure & Management Team



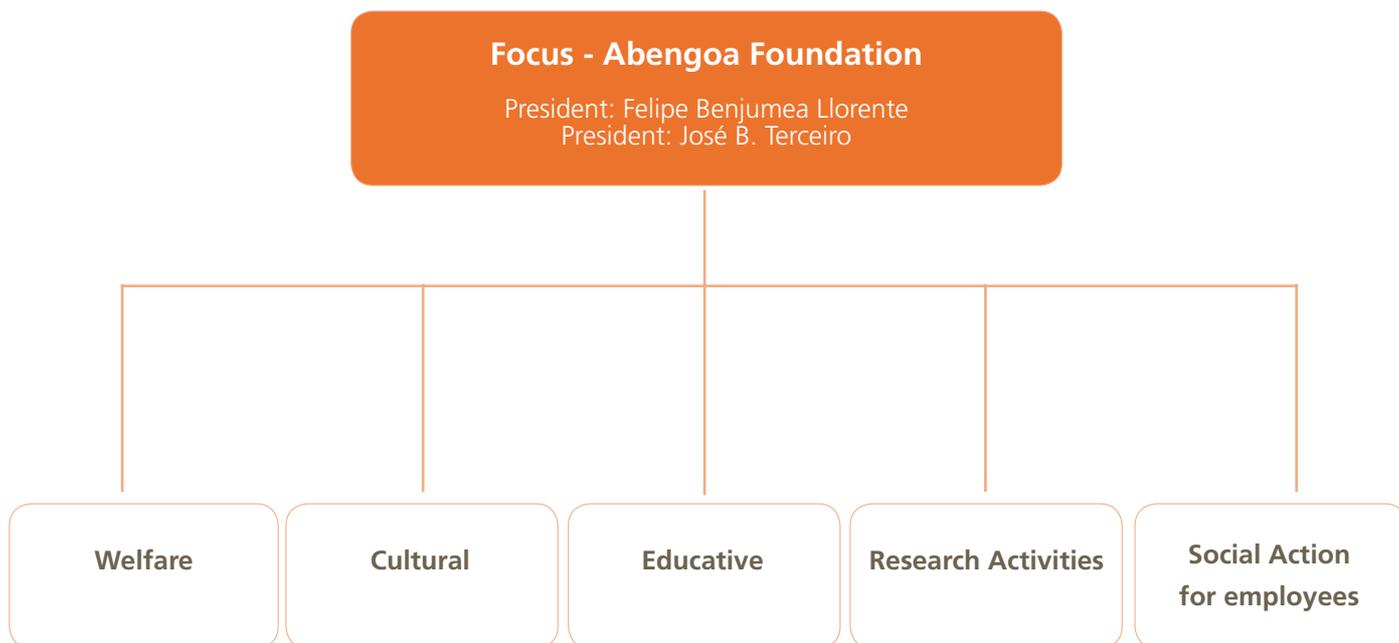
<p><b>Internal Auditing</b> L. Enrique Pizarro Maqueda</p> <p><b>Communications Department</b> Patricia Malo de Molina Meléndez</p> <p><b>Consolidations Department</b> Enrique Borrajo Lovera</p> <p><b>Management control</b> Juan Carlos Jiménez Lora</p> <p><b>Finance Services</b> Amando Sánchez Falcón</p> <p><b>Strategy &amp; Corporate Development</b> Javier Camacho Donézar</p>	<p><b>IT &amp; Telecommunications</b> Enrique Aroca Moreno</p> <p><b>Legal Services</b> Armando Zuluaga Ziberman</p> <p><b>Organization, Quality &amp; Budgets</b> Luis Fernández Mateo</p> <p><b>Human Resources</b> Álvaro Polo Guerrero</p> <p><b>Institutional Relations</b> <b>Assistant CEO</b> Germán Bejarano García</p>	<p><b>Investor Relations Department</b> Juan Carlos Jiménez Lora</p> <p><b>Corporate Social Responsibility</b> Carlos Bousoño Crespo</p> <p><b>Risk Management</b> Rogelio Bautista Guardado</p> <p><b>General Secretariat</b> Miguel Ángel Jiménez-Velasco Mazarío</p> <p><b>General Secretariat for Sustainability</b> Fernando Martínez Salcedo</p> <p><b>Technical Secretary</b> José Domínguez Abascal</p>
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## Board Structure Abengoa

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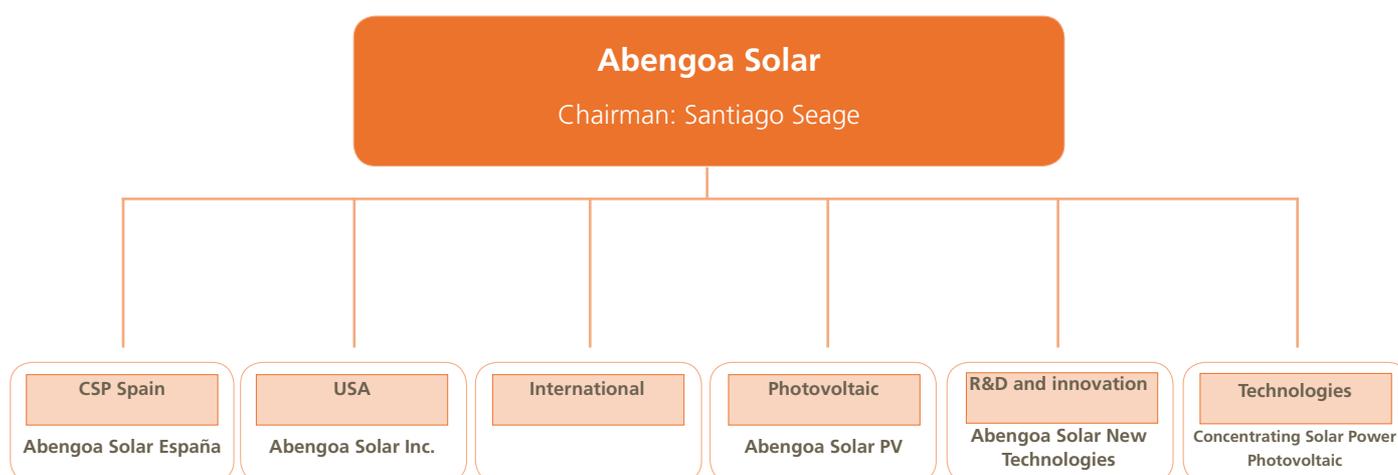
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**Board Structure Focus - Abengoa Foundation**

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## Board Structure Abengoa Solar

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Board Structure Abengoa Bioenergy

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## Board Structure Abengoa Bioenergy

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Abengoa Bioenergía Brasil	Joaquín Alarcón de la Lastra Romero	Fazenda São Luiz 13630-970 Pirassununga-SP (Brazil)	+55 193 5655555	+55 193 5655502
Abengoa Bioenergía São João	Joaquín Alarcón de la Lastra Romero	Fazenda Lagoa Formosa 13870-672 São João da Boa Vista-SP (Brazil)	+55 19 3565 5555	+55 19 35655502
Abengoa Bioenergía São Luiz	Joaquín Alarcón de la Lastra Romero	Fazenda São Luiz 13630-970 Pirassununga-SP (Brazil)	+55 193 5655555	+55 193 5655502
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Abengoa Bioenergy New Technologies	Gerson Santos-León	16150 Main Circle Drive. Suite 300 Chesterfield. St. Louis MO 63017. (USA)	+1 636 7280508	+1 636 7281148
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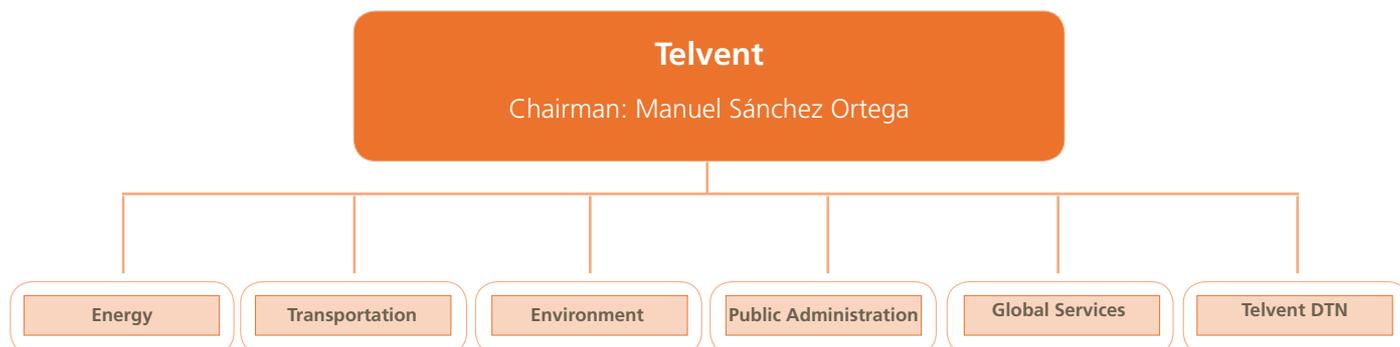
## Board Structure Befesa

Board Structure	Head	Address	Telephone	Fax
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Befesa Zinc Freiberg GmbH & Co. KG	Uwe Hasche	Alfred-Lange-Strasse 10. 09599 Freiberg (Germany)	+49 3731 38 99-0	+49 3731 38 99 12
Recytech, S.A.	Charles Van Cutsem	43. Route de Noyelles. 62740 Fouquierés-Lez-Lens (France)	+33 3 21 79 13-0	+33 3 21 79 13 59
Befesa Valera SAS	Marc Wauters	Route Duvigneau. 59820 Gravelines (France)	+33 3 28 51 91 91	+33 3 28 51 91 74
Befesa Scandust AB	Ulf Helgeson	P.O. Box 204. 26123 Landskrona (Sweden)	+46 418 43 78 01	+46 418 43 78 12
Befesa Zinc Sondika, S.A.	Joseba Arrospide Ercoreca	Sangroniz Bidea 24. 48150 Sondika. Vizcaya (Spain)	+34 94 471 14 45	+34 94 453 28 53
Befesa Zinc Amorebieta, S.A.	Joseba Arrospide Ercoreca	Barrio Euba s/n. 48340 Amorebieta. Vizcaya (Spain)	+34 95 673 09 30	+34 94 673 08 00
Befesa Zinc Comercial, S.A.	Ana Martínez de Urbina Abrisqueta	Ctra. Bilbao-Plencia 21. 48950 Asua-Erandio. Vizcaya (Spain)	+34 94 453 50 30	+34 94 453 33 80
Befesa Steel Services GmbH	Uwe Lüke	Albert-Hahn-Strasse 9. 47269 Duisburg (Germany)	+49 203 80 93-0	+49 203 80 93-219
Befesa management of industrial wastes	Santiago Ortiz Domínguez Alfredo Velasco Erquicia	Benito Mas y Prat 5. 41005 Seville (Spain)	+34 95 493 70 00	+34 95 498 08 84 +34 954 93 73 23
Befesa Desulfuración, S.A.	Asier Zarranonandia Ayo	Buen Pastor s/n. 48903 Luchana-Baracaldo (Spain)	+34 94 497 00 66	+34 94 497 02 40
Befesa Plásticos, S.L.	Manuel Roca Blanco	Parque Ind Las Salinas C/ Las Salinas s/n. 30840 Alhama de Murcia. Murcia (Spain)	+34 96 832 06 21	+34 96 863 22 33
Befesa Gestión PCB, S.A.	Manuel Roca Blanco	Pol. Ind Cabezo Beaza Avda de Bruselas. 148-149. 30395 Cartagena. Murcia (Spain)	+34 96 832 06 21	+34 96 812 21 61
Water generation & management	Guillermo Bravo Mancheño	Avda. de la Buhaira 2. 41018 Seville (Spain)	+34 95 493 70 00	+34 95 493 70 18
Befesa Agua	Guillermo Bravo Mancheño	Avda. de la Buhaira 2. 41018 Seville (Spain)	+34 95 493 70 00	+34 95 493 70 18
Befesa Infrastructure India (P) Ltd.	Rodolfo González Ruiz	"Gee Gee Universal" 2nd floor. No 2 Mc Nichols Road. Chetpet. Chennai - 600 031 Tamil Nadu (India)	+91 44 4295 40 00	+91 44 4295 40 30
Chennai Water Desalination Ltd.	Rodolfo González Ruiz	30 A. South Phase. 6th Cross Road. Thiru Vi. Ka. Industrial Estate. Guindy. Chennai 600 032. Tamil Nadu (India)	+91 44 22 32 66 12	+91 44 22 32 66 12
NRS Consulting Engineers. Inc.	Bill Norris	1222 E. Tyler. Suite C. Harlingen. Texas 78550 (USA)	+1 956 423 7409	+1 956 423-7482
Water Build. Ltd.	Jesús Leal	1222 E. Tyler. Suite C. Harlingen. Texas 78550 (USA)	+1 956 423 7409	+1 956 423-7482
Aguas de Skikda Spa	Fernando Maiz	52. Lot Bois des Cars II. Dely Ibrahim - Argel (Algeria)	+213 21 363 892	+ 213 21 363 892

Board Structure Befesa

Board Structure	Head	Address	Telephone	Fax
Myah Bahr Honaine Spa	Fernando Maiz	52. Lot Bois des Cars II. Dely Ibrahim - Argel (Algeria)	+213 21 363 892	+ 213 21 363 892
Tenes Lilmiyah Spa	Alberto Vergara	52. Lot Bois des Cars II. Dely Ibrahim - Argel (Algeria)	+213 21 363 892	+213 21 363 892
Befesa Agua Qingdao, S.L.	Pedro Almagro Gavilán	A2. 10th floor. China Ren building. No. 2 Shangdong Road. 266071. Qingdao (China)	+86 532 83095808	+86 532 83095808
Codesa, S.A.	Federico Barceló Pinzón	Bda Fuente del Rey- Prolongación c/ D.Remondo s/n. 41700 Dos Hermanas. Seville (Spain)	+34 95 469 26 54	+34 95 469 09 41
Micronet Porous Fiber, S.L.	Guillermo Crovetto	Edificio Gobela. escalera 2. 1ª planta. 48940 Leioa. Vizcaya (Spain)	+34 94 480 02 80	+34 94 464 82 76
Procesos Ecológicos Vilches, S.A.	Manuel Neila Matas	Ctra. La Carolina-Ubeda Km. 12. 23220 Vilches. Jaen (Spain)	+34 95 363 11 85	+34 95 363 11 88
Iniciativas Hidroeléctricas, S.A.	Manuel Neila Matas	Avda. de la Buhaira 2. 41018 Seville (Spain)	+34 954 93 71 84	+34 95 493 70 20
Agua y Gestión de Servicios Ambientales, S.A.	José Marañón Martín	Avda. Americo Vespucio. Edificio Cartuja. Bloque E. 2ª pta. Módulo 2. 3. 4. 41092 Seville (Spain)	+ 4 954 46 77 70	+34 954 46 77 71
Latin America	Juan Abaurre Llorente	Avda. de la Buhaira 2. 41018 Seville (Spain)	+34 95 493 70 00	+34 954 93 70 18
Befesa Argentina, S.A.	José Giménez Burló	Paseo de Colón. 728. 7ªA. C1063ACU Ciudad Autónoma de Buenos Aires (Argentina)	+5411 40 00 79 00	+5411 40 00 79 99
Befesa Perú, S.A.	Jorge Carlos León León	Canaval y Moreyra 654. piso 7. San Isidro- Lima (Peru)	+511 224 54 89	+511 224 54 89
Befesa México, S.A. de C.V	Norberto del Barrio Brun	Bahía de Santa Bárbara 174. Col. Verónica Anzures. 11300 Mexico D.F. (Mexico)	+52 55 52 62 71 11	+52 55 52 62 71 50
Befesa Chile Gestión Ambiental Limitada	Jorge Carlos León León	Las Araucarias 9130. Santiago (Chile)	+56 2 461 49 00	+56 2 461 49 90

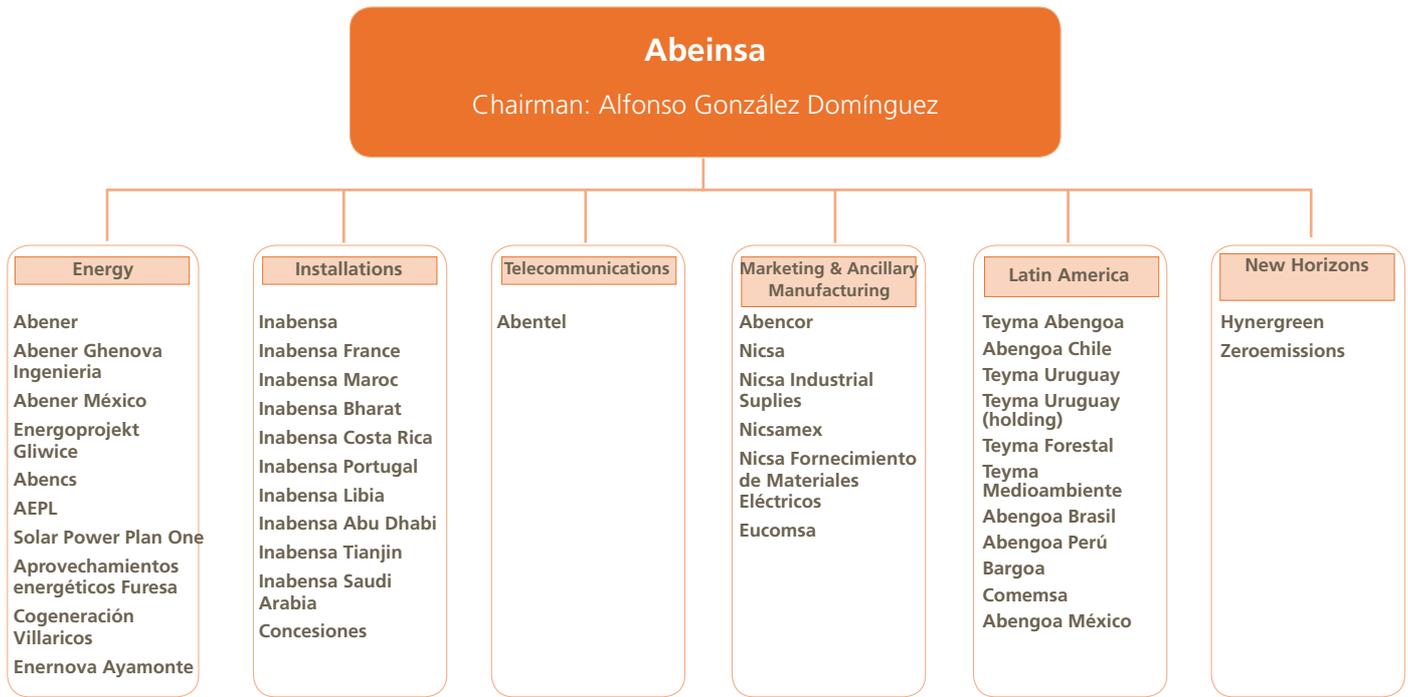
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### Board Structure Telvent

Board Structure	Head	Address	Telephone	Fax
<b>Telvent</b>				
Chairman	Manuel Sánchez Ortega	3206 Tower Oaks Blvd. Rockville. Maryland. 20852. USA	+34 902 335599	+34 917 147001
		Valgrande, 6. 28016 Alcobendas Madrid (Spain)	+1 301 468 5568	+1 301 816 1884
<b>Telvent Energy</b>				
	Larry Stack	10333 Southport Road SW Calgary. Alberta. T2W 3X6 Canada	+1 403 2538848	+1 403 2592926
	Ignacio González Domínguez	7000A Hollister. Road. Houston. Texas. 77040-5337. USA	+1 970 223 1888	+1 970 223 5577
<b>Telvent Transportation</b>				
	José Montoya Pérez	Valgrande, 6. 28016 Alcobendas Madrid (Spain)	+34 902 335599	+34 917 147001
	José Mª Flores Canales	Valgrande, 6. 28016 Alcobendas Madrid (Spain)	+34 902 335599	+34 917 147001
<b>Telvent Environment</b>				
	Javier Garoz Neira	Valgrande. 6. 28016 Alcobendas Madrid (Spain)	+34 902 335599	+34 917 147001
<b>Telvent Public Administration</b>				
	Adolfo Borrero Villalón	Tamarguillo. 29. 41006 Sevilla (Spain)	+34 902 335599	+34 954 926424
<b>Telvent Global Services</b>				
	José I. del Barrio Gómez	Valgrande. 6. 28016 Alcobendas Madrid (Spain)	+34 902 335599	+34 917 147001
<b>Telvent DTN</b>				
	Robert Gordon	11400 Rupp Drive. Minneapolis. MN 55337. USA	+1 800 328 2278	
		9110 West Dodge Road. Omaha. NE 68114. USA	+1 800 485 4000	

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Board Structure Abeinsa

Board Structure	Head	Address	Telephone	Fax
Abeinsa				
Chairman	Alfonso González Domínguez	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937005
Energy	Manuel J.Valverde Delgado	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937009
Abener	Manuel J.Valverde Delgado	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937009
Abener Ghenova Ingeniería	Jose Luis Gómez Expósito	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 990200	+34 954 937009
Abener Mexico	Jaime I. García Muñoz	Bahía de Santa Barbara 174 Col. Verónica Anzures.11300 Mexico D.F. (Mexico)	+52 525 530673900	+52 525 552627160
Energoprojekt Gliwice	Artur Mermon	Ul. Zygmunta Starego 11 44-100. Gliwice (Poland)	+48 032 7902600	+48 032 7902601
Abencs	Emilio Martín Rodríguez	14522 South Outer Forty Road Chesterfield.63017 Saint Louis. MO (USA)	+314 275 5800	+314 2755801
AEPL	Anthony Vogel	110. L.B.S. Marg Vikhroli (West) 400 083 – Mumbai. Maharashtra (India)	+91 226 6889600	+91 226 6889655
Solar Power Plant One	Francisco Inocente Gómez Reyes	24. Djenane El Malik Hydra (Algeria)	+213 216 75712	+213 216 92230
Aprovechamientos Energéticos Furesa	Juan Antonio Gutiérrez del Pozo	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937367
Cogeneración Villaricos	Juan Antonio Gutiérrez del Pozo	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937367

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Enernova Ayamonte	Juan Antonio Gutiérrez del Pozo	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937367
Puerto Real Cogeneración	Juan Antonio Gutiérrez del Pozo	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937367
Installations	Eduardo Duque García	Manuel Velasco Pando. 7. 41007 Seville (Spain)	+34 954 936111	+34 954 936006
Inabensa	Eduardo Duque García	Manuel Velasco Pando. 7. 41007 Seville (Spain)	+34 954 936111	+34 954 936006
Inabensa France	Milagros Ramón Jerónimo	GVio Parc de la Bastide Blanche 13127 Vitrolles Batiment D2 (France)	+33 442 469950	+33 442 890135
Inabensa Maroc	Hamza Chebaa	179. Av. Moulay Hassan I 1° étage - Esc. A - 20000 Casablanca (Morocco)	+21222 274 346	+21222 229 736
Inabensa Bharat	G.C. Tather	Flat no 902, 9th Floor - Eros Corporate Tower 110019 New Delhi Nehru Place (India)	+9111 264 14093	+9111 262 13547
Inabensa Costa Rica	Nestor Atilio Heredia	100m. Sur del Automercado de los Yoses 1508-1000 Casa esquina gris (Costa Rica)	+506 234 8614	+506 225 0893
Inabensa Portugal	Crispim Manuel Gouveia dos Santos Ramos	Rua Profesor Henrique de Barros. 4 Edificio Sagres. 6°C 2685/338 Prior Velho- Lisbon (Portugal)	+351 219 411182	+351 219 411169
Inabensa Libia	Ignacio Ranero Herrero	Gurji road nearby Hai Al-Andalus souk. above Al-Gumhuria Bank 1st floor. flat nº 3. Tripoli (Libya)	+218 214 779283	+218 214 774555
Inabensa Abu-Dhabi	Manuel Rodríguez Lavado	Al Falah street (passport road) Saeed Hilal Al Dhahiri the Building.160 mezzanine Floor flat 2 Abu Dhabi (United Arab Emirates)	+971 263 51010	+971 263 51015
Inabensa Tianjin	Jiang Jiannong	Workshop B2, HongTai Industry Garden. No. 87 TaiFeng Road Teda Tianjin (PR China)	+862 225 290022	+862 225 290022
Inabensa Saudi Arabia. Ltd.	Javier Valerio Palacio	King Fahed Airport Road - Al faysalia Area -Street 71 P.O.Box 1083 Dammam 31431 Saudi Arabia	+34 954 936 111	+34 954 936016
Concesiones	María José Esteruelas Aguirre	Manuel Velasco Pando. 7. 41007 Seville (Spain)	+34 954 936111	+34 954 936007
Telecommunications	Vicente Chiralt Siles	Los Vascos. 17. 28040 Madrid (Spain)	+34 954 937000	+34 911 292661
Abentel	Vicente Chiralt Siles	Los Vascos. 17. 28040 Madrid (Spain)	+34 954 937000	+34 911 292661
Marketing				
Abencor	Rafael Gómez Amores	Tamarguillo. 29-1ª Planta. 41006 Seville (Spain)	+34 954 933030	+34 954 653282
Nicsa	José Carlos Gómez García	Gral. Martínez Campos. 15 28010 Madrid (Spain)	+34 91 4464050	+34 91 4483768
Nicsa Industrial Supplies	José Carlos Gómez García	7000A Hollister Road Texas 04216 Houston (USA)	+1 713 93999399	+1 713 93903393
Nicsamex	David Baldomero Gómez García	Bahía de Santa Barbara 174 Col. Verónica Anzures 11300 Mexico D.F. (Mexico)	+52 555 2627111	+52 555 2627162
Nicsa Fornecimiento	José Carlos Gómez García	Avenida Marechal Câmara. 160 - 18º Andar Salas 1833-1834 CEP-20020-080 Río de Janeiro (Brazil)	+5521 221 73300	+5521 221 73337

**Board Structure Abeinsa**

Board Structure	Head	Address	Telephone	Fax
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Latin America	Enrique Barreiro Nogaledo	Avda de la Buhaira. 2. 41081 Seville (Spain)	+34 954 937000	+34 954 937005
Teyma Abengoa	Alejandro Conget Inchausti	Paseo de Colón. 728 piso 10 C1063 ACU- Buenos Aires (Argentina)	+5411 400 07900	+5411 400 07977
Teyma España	Martín Salgado Devincenzi	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+5982 902 2120	+5982 902 0919
Abengoa Chile	Alejandro Conget Inchausti	Las Araucarias. 9130 Santiago Quilicura (Chile)	+562 461 4900	+562 461 4990
Teyma Uruguay	Daniel Gutiérrez García	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+5982 902 2120	+5982 902 0919
Teyma (Uruguay Holding)	Brandon Kaufman	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+5982 902 2120	+5982 902 0919
Teyma Internacional	Brandon Kaufman	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+5982 902 2120	+5982 902 0919
Teyma Forestal	Guillermo Rucks Lombardi	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+5982 902 2120	+5982 902 0919
Teyma Medioambiente	Diego Portos Minetti	Avenida Uruguay. 1283. 11100 Montevideo (Uruguay)	+509 48 92	+509 48 92
Abengoa Brasil	Antonio Merino Ciudad	Avenida Marechal Câmara. 160 Salas 1833-1834 CEP-20020-080 Rio de Janeiro (Brazil)	+5521 221 7 3300	+5521 221 73337
Abengoa Perú	Ignacio Baena Blázquez Agustín Nerguizán de Freitas	Avda. Canaval y Moreyra. 654 piso 7º San Isidro Lima 27 (Peru)	+511 224 5489	+511 224 7609
Bargoa	José Calvo Sebastián	Estrada do Camorin. 633 Jacarepaguá CEP-22780-070 Rio de Janeiro (Brazil)	+5521 341 65150	+5521 244 12037
Comemsa	Norberto del Barrio Brun Antonio Manzano Parra	Autopista Querétaro-Celaya. 38180-Guanajuato Km. 16. Calera de Obrajuelos Municipio de Apaseo El Grande (Mexico)	+52442 294 2000	+52442 294 2008
Abengoa Mexico	Norberto del Barrio Brun Javier Muro de Nadal	Bahía de Santa Bárbara. 174 Col. Verónica Anzures 11300 Mexico. D.F. (Mexico)	+5255 526 27111	+5255 526 27150
<b>New Horizons</b>				
Hynergreen Technologies	J. Javier Brey Sánchez	Avda. de la Buhaira. 2. 41018 Seville (Spain)	+34 954 937000	+34 954 937008
Zeroemissions Technologies	Emilio Rodríguez-Izquierdo Serrano	José de la Camara.3-4C. 41018 Seville (Spain)	+34 955 112360	+34 647 812610

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