





The Bioenergy business unit is spearheaded by the company Abengoa Bioenergy, which produces and develops biofuels for transportation, bioethanol and biodiesel among others, that employ biomass (cereal, sugarcane, cellulosic biomass, and oleaginous seeds) as raw material. Biofuels are used for ETBE production (a gasoline additive), or for direct blending with gasoline or diesel. Being renewable energy sources, biofuels help to lower CO₂ emissions and enhance the security and diversification of the energy supply, while reducing dependency on fossil fuels in the transportation sector, and helping to reach compliance with the Kyoto Protocol.

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International Presence



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Key Figures	2010	2009	Var. '10-'09 (%)
Revenue (€M)	1,575	1,010	+56.0
EBITDA (€M)	212	123	+71.8
Installed capacity (Mgal)	830	496	+67.3
Investment in R&D (€M)	31.2	23.8	+31.1
Average number of employees	5,256	4,224	+24.4
Hours of training (h)	206,100	200,533	+2.8

Our Business

Over the course of 2010, Abengoa Bioenergy further cemented its standing as one of the leading producers of biofuels in Europe (397 Mgal - 1,500 ML- of annual production capacity), the United States (380 Mgal - 1,440 ML-) and Brazil (53 Mgal - 200 ML-), affording the company a total installed capacity of 830 Mgal - 3,140 ML.

Bioethanol prices decreased over the first half of the year due to lower demand for gasoline and slumping crude oil prices. Yet prices rallied sharply over the second half of the year on the back of strong demand for bioethanol, coupled with reduced imports from third party countries, with the increase amounting to as much as 25 % at year-end in comparison to the market prices seen at the start of the period.

Moreover, gasoline, crude oil and sugar, the commodities associated with bioethanol, all experienced rapid growth, with projections for next year far outstripping those for 2010.

In Brazil, the ethanol market is largely driven by local supply and demand, with a small volume earmarked for exports and no imports whatsoever. As a result, demand is chiefly influenced by the demand of ethanol-powered vehicles for hydrated ethanol. The ethanol consumption of this fleet and of vehicles that use gasoline mixed with anhydrous ethanol exceeds domestic production, which is directly driving up prices to new highs. Forecasts for this market are also promising and lend further credence to the idea that sales of flex-fuel cars will continue to climb at existing rates over the coming years. To meet this demand, Brazil is facing the major challenge of having to commission 25 production plants in the short to medium term.

The corporate mission of Abengoa Bioenergy is to engage in the following activities with a view to reaping the greatest returns for its stakeholders, industry and society at large:

- To contribute to the sustainable development of the vehicle fuels market and the bio-based chemicals products market by utilizing renewable energy (biofuels) and environmentally friendly technologies that reduce carbon emissions.
- To develop innovative technological solutions through continuous investment in research and development, resulting in more efficient production processes and distinctive and high-value feed coproducts.
- To create value for our shareholders.
- To contribute to the professional and personal development of our employees by providing continuous training, and by establishing and monitoring individualized goals and development plans.

From this platform, Abengoa Bioenergy works on a daily basis to accomplish the following objectives:

- To be recognized as a world-wide leader in the production and commercialization of bioethanol from bio-renewable resources.
- To be recognized as a world leader in research and development, known for technological innovation in the conversion of biomass to bioethanol.
- To provide a superior work environment in order to attract the best possible employees and to maintain excellence in operations.
- To attract the interest and respect of the financial community by means of sustained growth and technological innovation.

In order to reach these lofty targets while honoring the principles of integrity and ethics, Abengoa Bioenergy is guided by the following core values:

- Honesty in relationships with clients, shareholders, associates and co-workers.
- Respect for all people under all circumstances.
- Focus on teamwork by utilizing corporate tools that favor the sharing of information.
- Promote flexibility and mental attitude necessary to adapt to continuous change.
- Protection, defense and improvement of the environment.

The company's activities can be grouped into six main areas:

- Procurement of raw materials.
- Bioethanol origination.
- Production.
- Commercialization of bioethanol, DGS (distiller's grains and solubles) and sugar.
- Electricity cogeneration.
- New technologies.

Abengoa Bioenergy, with operations in five countries on three different continents, currently owns thirteen plants for producing bioethanol and other process-related coproducts, along with a biodiesel production plant, distributed as follows:

- Europe: Spain, France and the Netherlands.
- North America: United States.
- South America: Brazil.

These plants cater to the demands of global bioethanol markets from practically any corner of the world. Most sales stem from current producer countries, in addition to Sweden and South Asia.

Abengoa Bioenergy seeks out growth by attempting to consolidate operations in all business areas, investing continuously in technology with a view to streamlining production and sales processes, and developing new biofuel and coproduct production technologies, thus enabling the company to employ sustainable raw materials and curb greenhouse gas (GHG) emissions.

The company operates with the utmost respect for best industrial practices. It has also been striving for many years to obtain sustainable raw materials and produce sustainable products, with sustainability constituting the main cornerstone of its business. This commitment to the environment is finally beginning to seep through to society, and governments from most countries are now addressing this overriding concern through legislative change.

The prevailing environment in which all companies currently operate is defined by constant flux and change, which is forcing companies to step up their competitive efforts in order to ensure further development. In order to set itself apart from the crowd, Abengoa Bioenergy is focusing on converting this competitive drive into one of the key parameters for guaranteeing innovation, flexibility and reactivity at all times, and this is reflected in the company's strategic plan.

Competency-based management, Abengoa Bioenergy's chosen management model, mirrors the company's need to generate markedly competitive value and advantages through people, a competitive edge that is truly difficult to imitate. The company's employees are therefore one of the most important assets underpinning its market dominance, thereby making talent attraction, creation and retention a key priority. All selection and recruitment processes, whether internal or external, are rooted in this model.

With this in mind, Abengoa Bioenergy views training as a systematic and continuous process through which to hone, enrich, strengthen and adapt the conceptual, attitudinal and procedural skills and competencies of its employees. Competency-based management sees training as a means of improving the technical and generic skills of people in the workplace by improving their knowledge, developing aptitudes and skills and enhancing capacities. In order to perform at optimum levels, companies must roll out constant training initiatives and refresher courses. With this in mind, Abengoa Bioenergy is investing heavily in staff training within the different required areas.

It is also worth noting that Abengoa Bioenergy engages in these management processes while continuously upholding human and labor rights and respecting freedom of association. The company fully recognizes the right to collective bargaining, and strives to eliminate all forms of forced and obligatory labor, abolish child labor and, lastly, eliminate all kinds of discrimination with the utmost respect for employment. Abengoa Bioenergy shapes its working practices to reflect the United Nations Universal Declaration of Human Rights, associated protocols and other

international treaties and agreements on social rights, and likewise ensures that the conduct of its employees reflects these commitments.

Abengoa Bioenergy is fully aware of the importance of all stakeholders to its business and growth. For this reason, the company not only offers them continuous, transparent and accurate information on its business activities, but also attempts to encourage dialogue with all of them through different channels of communication tailored to their unique characteristics, while also developing new channels as a response to what must be a dynamic and enriching process for all parties involved.

The main stakeholders of Abengoa Bioenergy are its employees, customers, suppliers, shareholders and the community at large. All their expectations are mirrored in the course of business and in the company's strategic plan, which addresses the trends and challenges of the sector and reflects the company's path towards sustainable development and the fight against climate change. The plan defines the risks and opportunities associated with each of Abengoa Bioenergy's products and services throughout all of its territories and markets, as well as the projected results. It explores the impact sustainability can have on the company, based on the information provided by market reports and internal reports.

Abengoa Bioenergy attaches great importance to communication with customers and their privacy. Its unflinching commitment to providing excellent service is one aspect the company considers of paramount importance. It has therefore set up direct channels of communication between its technical and sales departments and customers, the aim being to forge a closer relationship and address any comments or suggestions its customers may have.

The management systems in place have highlighted the need to implement mechanisms to gauge customer satisfaction and analyze their needs and expectations. The company therefore periodically conducts satisfaction surveys, which are managed by the plants' quality assurance departments. This analysis ultimately leads to specific objectives and action plans to cover expectations and improve levels of satisfaction.

Abengoa Bioenergy adheres to Abengoa criteria and systems when it comes to customer privacy. Abengoa guarantees the validity, integrity and security of all the information it handles, particularly the personal data of its customers. In order to ensure suitable security measures relating to communications and information systems, there is a security policy statement that extends to all Abengoa companies and organizations. This statement provides information on the implementation of an Information Security Management System as a means of attaining the security objectives, with security encompassing confidentiality, integrity and availability.

The main objective for 2011 and successive years is to continue performing and improving on all areas of business, while pursuing best practices in terms of risk management and process efficiency and making sustainability an absolute priority.

A key objective will be to consolidate production and sales. The company's global presence will also enable it to harness arbitrage opportunities that are sure to arise between different markets. In 2011, Abengoa Bioenergy will continue to focus on quality, measured in terms of sustainability, ahead of quantity. Every effort will be made to improve the sustainability of all production assets, and similarly to consolidate operations at the latest plants to have been commissioned and continue construction on a second generation bioethanol plant in the United States.

2010 in Review

At present, Abengoa Bioenergy ranks as one of the leading biofuel producers in Europe, the United States and Brazil, with an annual production capacity of 830 Mgal (3,140 ML).

The Bioenergy business unit is currently reporting excellent levels of business, reflecting its standing as one of the world's leading bioethanol producers and marketers. Production at existing plants is living up to the company's best expectations, and the commissioning of new plants in the United States and the Netherlands has further strengthened the company's critical mass. Furthermore, an increase in trading activity has led to greater control and management in accordance with the company's strategy.

There is now a clear need for a change of practices and policies and various governments have already begun to act accordingly. Business performance depends largely on favorable legislation that facilitates the development of new technologies while enabling biofuel culture to expand and combat the obvious signs of climate change. 2009 turned out to be a very fruitful year in this respect.

Two new legislative acts were enacted on June 25th 2009 in order to consolidate and kick-start the biofuel market over the coming ten-year horizon. European Directive 2008/28/EC on renewable energy sources dictates that at least 10 % of transportation fuel within EU member states must be produced from renewable energies by 2020. The amendments made to Directive 2009/30/EC on fuel quality include an additional incentive for using biofuels by ushering in a compulsory reduction in greenhouse gas emissions during gasoline and diesel life cycles between 2011 and 2010.

Working in tandem, these two directives ensure the future of existing biofuel production plants and those currently under construction. At the same time, they provide a platform for long-term growth within the biofuel sector by harnessing current commercial technologies, and also offer special incentives and support for those attempting to develop the next generation of lignocellulosic technologies. All in all, they provide the market platform and the outlook for the coming decade that the sector was hoping for.

Legislation aimed at combating climate change has been a key aspect on the agenda of the US government over 2009 and 2010. The main objective is to reduce the GHG emissions generated by the transportation fuel sector. The main act currently championing the development of the bioethanol sector, and underpinning the RFS (Renewable Fuel Standards) and the rules and regulations governing production and biofuel implementation requirements, is the Energy Independence and Security Act, which was approved in 2007 and enacted in 2010.

The United States has also recently witnessed a number of important political changes. This has complicated the task of ushering in the required legislative changes and hindered existing policies on renewable energies and climate change. Although funds were indeed earmarked for incentives aimed at stimulating technology and the ethanol industry and to bring these advantages to end consumers, actual biofuel implementation has been slower than expected.

Against this backdrop, Abengoa Bioenergy has managed to harness the existing legislative framework and the biofuel markets, and has likewise been able to roll out its expansion plans over 2010, completing the bioethanol and biodiesel projects initiated in previous years in Spain, the Netherlands, the United States and Brazil, as well as cogeneration projects in Brazil to increase the overall performance of the plants already operating within the country.

Following the start-up of the company's most recent plant in the Netherlands, Abengoa Bioenergy has, in a touch over ten years, climbed from an initial installed capacity of 40 Mgal (150 ML) to over 830 Mgal (3,140 ML) in 2010.

For Abengoa Bioenergy, 2010 was a year of consolidation and growth, with a wealth of success stories reported in the United States, Europe and Brazil. All objectives were met, with the company

completing construction and commissioning of numerous projects underway, while exploring new paths to expansion and market penetration:

- Commissioning with total loading of a plant in Mount Vernon, Indiana, capable of producing 90 Mgal (340 ML) of bioethanol and 230,000 t of DGS per year.
- Commissioning with total loading of a plant in Madison, Illinois, capable of producing 90 Mgal (340 ML) of bioethanol and 230,000 t of DGS per year.
- Start-up of a plant at the Europoort in Rotterdam, the Netherlands, capable of producing 127 Mgal (480 ML) of bioethanol and 360,000 t of DGS per year.
- Commencement of maritime bioethanol exports from the United States.
- Lease of a new 2.6 Mgal (10 ML) capacity storage terminal in Houston by Abengoa Bioenergy Trading US.
- Abengoa Bioenergy initiates ethanol and DGS export activity by barge along the Mississippi and Ohio rivers.
- Abengoa Bioenergy Netherlands starts up a system to load grain from the jetty at the Europoort, featuring a 600 m conveyor belt.
- Promotion and expansion of a network of e85 biofuel service stations in Spain, which already boasts 21 distribution points.
- Implementation of the STOP program, resulting in improvements to on-site work safety and staff performance.
- Staging of the IX World Biofuels Conference.
- Organization of the first Environment Week (SIMA) in Brazil.
- €13.6 M subsidy granted by the Spanish Ministry for Science and Innovation as part of the CENIT program for the Sustainable Biorefinery Project.
- Start-up of the Lignocellulosic Ethanol Demonstration (LED) project, funded by the European Commission and developed by a consortium of five companies from four different countries headed by Abengoa Bioenergy.
- Involvement in the incorporation of the new ePure European renewable ethanol association.
- Southwestern Illinois award presented to Abengoa Bioenergy of Illinois.
- Economic development award (EDIE) presented to Abengoa Bioenergy of Illinois.
- Abengoa Bioenergy Operations receives the Chemical Safety Excellence Award for the second year running.
- Abengoa Bioenergía San Roque secures ISO 9001, ISO 14001 and OHSAS 18001 certification.

Our Activities

Abengoa Bioenergy is a benchmark company in the development of new technologies geared towards the production of biofuels and the sustainability of raw materials, channeling to such end a tremendous amount of resources into research. The presence of a trading division means that the company is also a service provider capable of offering global solutions, with impressive capacity for marketing and managing commodities, reliably backed by its global production and raw material procurement capacities and highly efficient operations – cornerstones that afford reliability and critical mass, which are key to optimum business development.

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

The company 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 coproduct a distinct competitive edge.

Abengoa Bioenergy honors its commitment to creating value for shareholders and contributes to the personal and professional development of its employees through continuous training as well as by setting up and overseeing individualized plans.

Abengoa Bioenergy creates new opportunities for sustainable rural development by providing incentives for 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 also helping to diversify and improve the security of the energy supply. Their use, either in a pure state or blended with fossil fuels, reduces CO₂ emissions, slows down climate change, and reduces the emission of polluting agents into the environment.

The company's activities can be grouped into six main areas:

- Procurement of raw materials.
- Bioethanol origination.
- Production.
- Commercialization of bioethanol, DGS and sugar.
- Electricity cogeneration.
- New technologies.

Raw Material Procurement

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

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

Since operations began, Abengoa Bioenergy has managed to build up a wealth of experience in both the supply and logistics of commodities. It has displayed great prowess and versatility both on the international stage and when purchasing within the domestic market, and has also secured direct supply agreements with farmers, thus ensuring the unit's plants have the volume of materials they require. Similarly, the company has in-depth knowledge of all applicable rules and regulations governing operations in the European Union and North America.

Abengoa Bioenergía Brasil grows sugarcane while ensuring sustainable rural development, biodiversity and regional economic growth. Its subsidiary company, Abengoa Bioenergía Agrícola, ensures that the company's production plants are properly supplied by signing contracts with landowners, carrying out the necessary work for combined use of the land, and with farmers, by providing the necessary resources and advice in order to start up production.

Bioethanol Origination

In addition to Abengoa Bioenergy's bioethanol production capacity, which is marketed by the trading companies, the latter also carries out bioethanol origination from third-party producers to add this product to the pool, thus allowing for greater flexibility and competitiveness in terms of the customer portfolio.

Production

Bioethanol is produced in plants across Europe, North America and Brazil. Bioethanol is obtained from cereal grains through chemical processes and treatment, to produce either ETBE (a component of all types of gasoline), or for direct blending with gasoline to obtain biofuels, either e85 (a mixture of 15 % gasoline and 85 % bioethanol) or e10 (90 % gasoline and 10 % bioethanol).

The coproduct DGS is also obtained from the bioethanol production process. This high-protein compound is obtained by extracting starch from cereal grains and is ideal for producing livestock feed.

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

Commercialization of Bioethanol and Coproducts

Abengoa Bioenergy has operations in key locations for worldwide bioethanol trading and exports, namely Rotterdam (the Netherlands), affording immediate access to the Europoort; St. Louis, MO (USA), right in the heart of the country's main cereal production and cattle breeding region; and in São Paulo (Brazil), the birthplace of bioethanol-from-sugarcane production. Through all these facilities, Abengoa Bioenergy is able to meet the bioethanol, DGS and sugar demands of the European, North American, and Brazilian markets.

Market fluctuations, prevailing political conditions throughout the different territories and other factors affecting operations in terms of procuring raw materials and producing the products to be commercialized, are all carefully analyzed from a global standpoint in order to give us a better vision of the global market. Meticulous analysis and risk management improve the performance of corporate processes, always within the context of sustainable development, and respect for the environment, human rights and the community remains one of the company's guiding principles. Abengoa Bioenergy is therefore able to offer its customers the option of selecting solutions best tailored to their needs by providing the necessary reliability and flexibility throughout its bioethanol supply process.

Electricity Cogeneration

Some of the current bioethanol production facilities also feature electricity cogeneration systems. Either natural gas or sugarcane bagasse is used to generate the steam and electricity required to operate the plants. At present, the plants in Spain, the Netherlands and Brazil feature generators that produce more than enough electricity to meet the needs of the plants themselves, and the plants in France and the United States are soon to follow suit. The surplus electricity is fed back into the power grids of the country in question, further enhancing the profitability and sustainability of the facilities.

There is currently a project under construction in Hugoton, Kansas, that will mark another step forward in the field of cogeneration by employing agricultural waste as raw material, thus squeezing the most possible out of available resources.

New Technologies

Abengoa Bioenergy fully intends to become a leading figure within the bioenergy sector and a worldwide producer of biofuels. Its mission is to develop innovative technological processes for producing bioethanol and associated coproducts. To this end, it works to develop production and processing technologies, with unbeatable and highly efficient operational practices.

The human team of engineers and scientists, who coordinate their work with other R&D centers, universities and industrial partners, develops innovative processes in order to increase the

performance of grain-based bioethanol, develop new coproducts, improve the quality of existing products and develop lignocellulosic biomass technology for bioethanol production. As part of its business strategy, the company creates and registers intellectual property to provide technology to third parties under management agreements.

Projects by Territory

Europe

Abengoa Bioenergy currently operates five bioethanol production plants in Europe, three of which are located in Spain, one in France and one in the Netherlands. It also operates a biodiesel production plant in Spain.

Abengoa Bioenergy is the European leader in bioethanol production as biofuel usage. Its plants in Spain are: Ecocarburantes Españoles in Cartagena, Murcia; Bioetanol Galicia in Teixeira, La Coruña; and Biocombustibles de Castilla y Leon in Babilafuente, Salamanca, which have a total annual installed capacity of 40, 52 and 53 Mgal (150, 195 and 200 ML), respectively.

Its Biocombustibles de Castilla y Leon plant in Babilafuente, Salamanca, also includes a second generation bioethanol plant capable of producing 1.3 Mgal (5 ML) of bioethanol a year from biomass. It is the world's first plant to utilize this kind of technology on such a scale.

The company believes that the shortest path to developing technology for producing second generation biofuels is through "hybrid plants", which combine first and second generation facilities to cut the cost of implementing new technologies and harness the advantages offered by economies of scale.

Unloading dock at
the Europoort plant in
Rotterdam, the Netherlands



The biodiesel production plant in San Roque, Cadiz, has been designed to operate with different kinds of vegetable oil - soybean, rapeseed and palm - and does not therefore depend on just one supply source. The plant boasts a total annual installed capacity of 200,000 t of biodiesel and 18,500 t of glycerin.

Following the start-up of this new plant, Abengoa Bioenergy now has the necessary biodiesel market knowledge and production technologies, cementing its leading role in forging a global biofuel market for the transportation industry.

In addition, Abengoa Bioenergy, through Abengoa Bioenergy France, has now consolidated operations in its French plant, which has a production capacity of 66 Mgal (250 ML) a year and utilizes corn and low-quality vegetable alcohols as raw materials.

Abengoa Bioenergy Netherlands (ABN) has started up its plant at the Europoort, Rotterdam, Europe's largest bioethanol plant and one of the largest in the world, with a projected annual grain-to-bioethanol production capacity of 127 Mgal (480 ML). Apart from bioethanol, the Europoort plant has an annual DGS (distiller's grains and solubles) and high-quality CO₂ production capacity of 360,000 t and 300,000 t, respectively. The CO₂ is transported through pipelines to the various greenhouses in the region and is used to help grow crops, thus reducing reliance on natural gas, enhancing sustainability and cutting total GHG emissions.

The facility also features a grain loading system, which includes a 600 m conveyor belt to transport the grain from the jetty to the plant. This system allows the company to unload small vessels, ranging from 1,000 t, to 600,000 t Panamax-type ships. ABN has a capacity of over 55,000 t at its own grain silos, enabling it to store a grand total of 1.2 Mt of grain per year.

In addition to marketing bioethanol, Abengoa Bioenergy continued work over 2010 on a bioethanol supply network in Europe, primarily in Spain and Germany, with over 20 directly supplied points in each country. This network is key to expanding the reach of bioethanol, and although the project is still in its early stages, it promises to become an undisputed reality within the next few years, capable of supplying biofuels to consumers across Europe.



World Biofuels Conference,
Seville

In May 2010, the IX World Biofuels Conference was held in Seville, bringing together representatives from the main biofuel producer associations in the United States, Brazil and the European Union.

The conference tackled numerous pressing issues, with highlights including the sustainability of biofuel life cycles and the associated raw material procurement process, along with the necessary verification mechanisms for ensuring this sustainability; the globalization of biofuel markets; raw materials and the current state of existing conversion technologies to bring second generation biofuels further into the fold.

Abengoa Bioenergy secured a €13.6 M subsidy for its Sustainable Biorefinery Project from the Spanish Ministry for Science and Innovation as part of the CENIT program. The BioSos project aims to tackle the entire biomass value chain, ranging from generation of the initial resource to final market-ready products, with special attention paid to production, primary transformations into intermediate products and transformation of these intermediate products into final market-ready products. It also attaches particular importance to developing studies and honing the tools needed to ensure the sustainability of the developed solutions.

March 2010 witnessed the start of the Lignocellulosic Ethanol Demonstration (LED) project, funded by the European Commission within the context of the Seventh Framework Program. The project is being developed by a consortium of five companies from four different countries and has Abengoa Bioenergy at the helm.

It not only envisages the design and construction of a biorefinery to produce second generation bioethanol from cereal straw, but also the use of such fuel in public vehicle fleets and the use of the lignin contained in the raw material to produce high valued added products. The project marks an important step forward in terms of the technology required to market and sell second generation bioethanol successfully.

Furthermore, Abengoa Bioenergy is one of the chosen members of the first Executive Committee of ePure launched in November 2010. ePure is the association of European renewable ethanol producers and is essentially a fusion of two former European bioethanol associations, namely UEPA and eBIO. As with eBIO, ePURE is an industrial association run by bioethanol producers, but while eBIO focused solely on bioethanol as a biofuel, the work of ePure, and UEPA for that matter, extends to all bioethanol uses, including not only biofuels, but also beverages and industrial applications.

The company operates the following production facilities in Europe:

Ecocarburantes Españoles

- Owned by Abengoa Bioenergy (95 %) and IDAE (5 %).
- Annual installed bioethanol capacity of 40 Mgal (150 ML).
- Annual DGS production capacity of 110,000 t.
- Annual electricity production capacity of 135,000 MWh.
- Annual grain consumption of 300,000 t.

Bioethanol plant in Valle de Escombreras, Cartagena, Murcia



The company Ecocarburantes Españoles SA owns a bioethanol production plant in Valle de Escombreras in Cartagena, Spain. Abengoa Bioenergía SA owns 95 % of the company, while IDEA, the Spanish Institute for Energy Diversification and Savings, owns the remaining 5 %.

Part of the CO₂ produced during the grain-to-ethanol transformation process is sold to facilities close to the plant, thereby eliminating the need for these companies to produce their own additional CO₂ and, therefore, making the bioethanol production process even more efficient and curbing carbon dioxide emissions into the atmosphere.

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

Bioetanol Galicia

- Owned by Abengoa Bioenergy (90 %) and Xes Galicia (10 %).
- Annual installed bioethanol capacity of 52 Mgal (195 ML).
- Annual DGS production capacity of 120,000 t.
- Annual electrical power production capacity of 165,000 MWh.
- Annual grain consumption of 340,000 t.



Bioethanol plant in Teixeiro-Curtis, La Coruña

The plant, which is owned by Bioetanol Galicia SA, is currently in operation in Teixeiro (A Coruña) and boasts a yearly bioethanol production capacity of 52 Mgal (195 ML). The company is 90 % owned by Abengoa Bioenergy and 10 % by Xes Galicia.

The surplus electricity generated during the bioethanol production process, which greatly outstrips actual plant consumption, is fed to the national power grid and accounts for part of the profits from the process.

Biocarburantes de Castilla y León

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol capacity of 53 Mgal (200 ML).
- Annual DGS production capacity of 120,000 t.
- Annual electrical power production capacity of 139,000 MWh.
- Annual grain consumption of 585,000 t.

Bioethanol plant in
 Babilafuente, Salamanca



The plant, owned by the company Biocombustibles de Castilla y Leon SA, is located in Babilafuente, Salamanca, and has a yearly production capacity of 53 Mgal (200 ML).

As with the other Spanish plants and in accordance with applicable law, plant-generated electricity that is not employed in bioethanol production is fed to the power grid.

Abengoa Bioenergy France

- Owned by Abengoa Bioenergy (69 %) and Oceol (31 %).
- Final installed bioethanol capacity of 66 Mgal (250 ML) per year.
- Annual DGS production of approximately 145,000 t.
- Estimated annual grain (corn) consumption of roughly 500,000 t.
- Estimated annual consumption of wine and sundry alcohol of approximately 13 Mgal (50 ML).

Bioethanol plant in Lacq,
 Pau, France



Abengoa Bioenergy France owns Abengoa Bioenergy's fourth ethanol production plant in Europe (the first outside Spain). It is 69 % owned by Abengoa Bioenergy and 31 % owned 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 at the Petrochemical Platform at Lacq, Pyrénées-Atlantiques (France). Projected total annual bioethanol production capacity amounts to 66 Mgal (250 ML), broken down into 53 Mgal (200 ML) using corn as the raw material, and 13 Mgal (50 ML) produced from the distillation of lower-quality vegetable alcohols.

Abengoa Bioenergy Netherlands

- Fully owned by Abengoa Bioenergy.
- Annual bioethanol production capacity of 127 Mgal (480 ML).
- Annual DGS production capacity of 380,000 t.
- Annual grain consumption of 1.2 Mt.



Bioethanol plant at the Europoort, Rotterdam, the Netherlands

The Bioenergy business unit has started up operations at the Europoort bioethanol plant in the port of Rotterdam, the Netherlands, with total investment amounting to €550 M. The company Abengoa Bioenergy Netherlands was set up to manage and operate the 127 Mgal/year (480 ML/year) grain (corn) bioethanol plant, currently the largest in Europe and quite possibly the world.

The plant also produces 300,000 t of high-quality CO₂ per year. The CO₂ is transported through pipelines to the various greenhouses in the region and is used to help grow crops, thus reducing reliance on natural gas, enhancing sustainability and cutting total GHG emissions.

The geographic location of the Port of Rotterdam, Europe's largest, where the Rhine and Meuse rivers reach the sea, makes it the main hub of European trade. Its unrivalled location allows for exports by river into central Europe and to Nordic destinations and the rest of the world by sea. The plant currently provides permanent work for 84 employees.

Abengoa Bioenergía San Roque

- Fully owned by Abengoa Bioenergy.
- Annual biodiesel production capacity of 59 Mgal (225 ML).
- Annual crude glycerin production capacity of 22,000 t.
- Estimated annual vegetable oil consumption of 205,000 t.

Biodiesel plant in San Roque, Cadiz



Abengoa Bioenergy's San Roque plant is located on a site annexed to the Gibraltar Refinery on the Palmones de San Roque industrial estate (Cadiz, Spain). It was started up in February 2009 and started supplying the refinery in March.

It has been designed to operate with different kinds of vegetable oil - soybean, rapeseed and palm - and does not therefore depend on just one supply source. The plant produces 200,000 t of biodiesel, which is utilized in 5 % blends with diesel at the Cepsa refinery. The plant also produces 18,500 t of glycerin with 85 % purity. The plant provides direct employment to 55 highly qualified workers.

Biomass Plant

- Fully owned by Abengoa Bioenergy.
- Annual bioethanol production capacity of 1.3 Mgal (5 ML).

Biomass-to-bioethanol plant in Babilafuente, Salamanca



Managed by Abengoa Bioenergía Nuevas Tecnologías, the purpose of the plant is to produce biofuels from lignocellulosic biomass. It is the first plant in the world to operate this kind of technology for commercial ends. The plant is located within the Biocombustibles de Castilla y Leon plant, meaning that both facilities share common services and process chains. The plant is currently operating continuously, using wheat straw as its raw material. The ethanol it produces is distilled to 42 % and then concentrated and dehydrated.

The facility is being used to improve the design of commercial plants to be constructed in years to come, gauge operational costs, identify bottlenecks and streamline operations.

United States

Abengoa Bioenergy is one of the leading bioethanol producers in the United States. It currently boasts an annual installed production capacity of roughly 380 Mgal (1,440 ML), distributed among its six plants located in Nebraska, Kansas, New Mexico, Indiana and Illinois. Abengoa Bioenergy is also one of the main marketers of ethanol and DGS for animal feed. It has built up an extensive network of customers, including the likes of Shell, Exxon-Mobil, Total, Valero and BP. Most of the ethanol is marketed in the form of e10, although sales in e85 have been increasing steadily.

The unit's three longest standing plants continue to operate under the control of Abengoa Bioenergy Corporation, and are located in Colwich, Kansas, Portales, New Mexico, and York, Nebraska. However, a number of different companies have been specially incorporated to operate the new plants in Nebraska, Indiana and Illinois, and also the future commercial biomass plant in Hugoton, Kansas. Similarly, separate companies have been created for marketing, engineering and construction activities.

The Indiana bioethanol plant has already entered into operation. The plant is located near to Evansville, Indiana, in the so-called Corn Belt and next to the Ohio River, one of the country's main river routes. The bioethanol and DGS produced on-site can be transported by truck, train or boat to supply the markets on the eastern side of the United States, or exported to other markets. The plant currently employs 56 workers and produces 90 Mgal (340 ML) of bioethanol and 230,000 t of DGS per year.

The Abengoa Bioenergy Illinois plant in Madison is sited next to the Mississippi River, one of the main communication and transport arteries running through the US Midwest. The plant was brought online at the start of the year. The facility gets through 825,000 t of cereal grain per year as raw material and produces 90 Mgal (340 ML) of bioethanol and also 230,000 t of highly durable DGS, thanks to its cutting-edge pelletizing systems. It currently employs 52 permanent workers.

Abengoa Bioenergy Trading US has leased a new storage terminal with an approximate capacity of 2.6 Mgal (10 ML). Located on the Houston Ship Channel, the terminal allows for loading and unloading to or from train, truck, barge and ship, while also providing direct access to international waters, thus opening up imports and exports to and from the United States. It also complements the company's bioenergy hubs in two other major international ports, namely Rotterdam in Europe and Santos in Brazil.

The year 2010 also saw Abengoa Bioenergy start up maritime exports of bioethanol from the United States to Southeast Asia. The ship *Bow Faith* carried Abengoa's cargo along the Houston Ship Channel and on to its final destination in Asia.

The company strives to implement best practices in order to streamline all its processes, improve performance and minimize risk in production, marketing and R&D. Prime examples of the company's success in this field are the official accolades that the various North American unit companies received in 2010.

Abengoa Bioenergy US Operations received the Leadership Council of Southwestern Illinois Award, a distinction illustrating the trust the public authorities place in the company. The award

was presented to Abengoa Bioenergy of Illinois at a ceremony held on May 6, 2010. The prize is awarded yearly to individuals and organizations from southwest Illinois that have reached impressive milestones and displayed leadership along the way. Abengoa Bioenergy of Illinois was specifically singled out as a leader in sustainable biofuel technologies and for its production capacity. It was similarly praised for its newly constructed state-of-the-art plant, which not only provides jobs but also marks a “leap forward in the nation’s search for energy independence, while also benefitting the environment”.

Moreover, the Illinois State Chamber of Commerce awarded Abengoa Bioenergy of Illinois its EDIE economic development award for its work on the Madison plant. The EDIE distinction is awarded yearly in various different categories in recognition of projects from the preceding twelve months that have made a major contribution to economic development. Abengoa Bioenergy of Illinois was awarded the prize in the Energy category. More specifically, the prize was awarded for the company’s heavy capital investment in a project that creates new jobs and bolsters the state’s economy.

CSX Transportation, one of the leading US transportation firms, providing rail and intermodal services for the transportation of goods, awarded the company Abengoa Bioenergy Operations the annual Chemical Safety Excellence award for its operating facilities, an accolade that reflects the company’s commitment to maintaining and promoting the safety of motor vehicles and its continuous safety processes when loading tank cars.

All the plants of Abengoa Bioenergy in North America, save for the new facilities in Indiana and Illinois, which are currently undergoing official certification processes, have integrated OHSAS with ISO 9001:2000, 14001:2004 and 18001:2001 standards, reflecting the unflinching commitment of Abengoa Bioenergy Operations to quality, safety and the environment. This set of rules is a verifiable health and safety system and was sought to reflect the company’s desire to have a standardized occupational health and safety system in place that can be used for the purposes of certification and registration. With the initial audits now finished, the companies operating the plants in Indiana and Illinois and the trading company have now met the necessary requirements to secure ISO 9001, ISO 14001 and OHSAS 18001 certification. All US plants are now registered under these standards.

The company operates the following production facilities in the United States:

Abengoa Bioenergy Corporation – Colwich

- Fully owned by Abengoa Bioenergy Corporation.
- Annual installed bioethanol production capacity of 25 Mgal (95 ML).
- Annual installed DGS production capacity of 70,000 t.
- Combined annual consumption of corn and sorghum of 240,000 t.

Bioethanol plant in
Colwich, Kansas



This is one of the three operational plants fully owned by Abengoa Bioenergy Corporation in North America. The plant currently operates at 100 % capacity and continues to report excellent

efficiency and consistent operations. Production capacity amounts to 25 Mgal/ year (95 ML/year), achieved through continuous batch cooking and fermentation processes. The CO₂ generated is captured and refined by an on-site client. The plant currently employs 44 highly qualified workers.

It is one of the oldest dry mill bioethanol facilities in the United States, having been operating non-stop for the last 25 years. The DGS it produces is not dried in the process and 100 % of the coproduct is sold in its natural state. The plant can process corn and sorghum at the same time and 50 % of its energy requirements are covered with methane from a municipal solid waste landfill.

Abengoa Bioenergy Corporation – Portales

- Fully owned by Abengoa Bioenergy Corporation.
- Annual installed bioethanol production capacity of 30 Mgal (115 ML).
- Annual installed DGS production capacity of 75,000 t.
- Annual sorghum consumption of 260,000 t.



Bioethanol plant in Portales, New Mexico

Expansion work was completed in 2006 to double production capacity by utilizing batch cooking and fermentation processes, with two separate distillation and dehydration stages. The DGS it generates is not dried in the process and 100 % of the coproduct is sold in its natural state. The plant can operate with corn and sorghum simultaneously. Annual installed bioethanol production capacity of 30 Mgal (115 ML). The fully operational plant employs 48 highly qualified workers.

Abengoa Bioenergy Corporation – York

- Fully owned by Abengoa Bioenergy Corporation.
- Annual installed bioethanol production capacity of 56 Mgal (210 ML).
- Annual installed DGS production capacity of 145,000 t.
- Annual corn consumption of 520,000 t.



Bioethanol plant in York, Nebraska

The plant currently operates at 100 % capacity and continues to report excellent efficiency and consistent operations. More than 50 % of the produced CO₂ is captured and refined by an on-site client. The facilities also provide services and logistical support to Abengoa Bioenergy New Technologies' adjacent pilot biomass plant. Annual production capacity amounts to 56 Mgal (210 ML), achieved through continuous batch cooking and fermentation processes. The plant currently employs 54 highly qualified workers.

Abengoa Bioenergy of Nebraska

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol production capacity of 90 Mgal (340 ML).
- Annual installed DGS production capacity of 230,000 t.
- Annual corn consumption of 825,000 t.

Bioethanol plant in
 Ravenna, Nebraska



The subsidiary Abengoa Bioenergy of Nebraska, wholly owned by Abengoa Bioenergy, is responsible for operating the Ravenna plant in Nebraska. Construction on the plant got underway in 2005 and was completed in 2007. The plant is currently operating at 100 % capacity according to specifications and boasts an installed bioethanol capacity of 90 Mgal per year (340 ML), achieved through continuous fermentation. It employs 56 highly qualified workers. The facility is the first in North America to utilize continuous fermentation technology.

The project includes a double railway circuit for simultaneous loading and shipment of 2.6 Mgal (10 ML) of bioethanol in 95 tank cars.

The plant is designed to recycle all process water, which is then treated and made ready for reuse. The plant therefore consumes less water, produces minimal pollution and therefore has the minimum possible impact on the ecosystem.

Abengoa Bioenergy of Indiana

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol production capacity of 90 Mgal (340 ML).
- Annual installed DGS production capacity of 230,000 t.
- Annual corn consumption of 825,000 t.

Planta de bioetanol en
 Mount Vernon, Indiana



The plant is located near Evansville, Indiana, in the so-called Corn Belt and next to the Ohio River, one of the country’s main river routes. The bioethanol and DGS produced on-site can be transported by truck, train or boat to supply the markets on the eastern side of the United States, or exported to other markets.

The Indiana plant currently employs 55 workers. When operating at full capacity, it consumes 825,000 t of corn, and produces 90 Mgal (340 ML) of bioethanol and 230,000 t of DGS per year.

Abengoa Bioenergy of Illinois

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol production capacity of 90 Mgal (340 ML).
- Annual installed DGS production capacity of 230,000 t.
- Annual corn consumption of 825,000 t.



Bioethanol plant in Madison, Illinois

The Abengoa Bioenergy plant in Madison, Illinois, is sited next to the Mississippi River, one of the main communication and transport arteries running through the US Midwest. The facility generates bioethanol and DGS from corn and gets through 825,000 t of cereal grain per year as raw material. It produces 90 Mgal (340 ML) of bioethanol and 230,000 t of DGS per year and provides employment to 52 workers.

Abengoa Bioenergy Biomass of Kansas

- Fully owned by Abengoa Bioenergy.
- Annual biomass-to-bioethanol production capacity of 25 Mgal (95 ML).
- Daily biomass consumption of 930 t.



Biomass used to produce second generation bioethanol

The aim of the Abengoa Bioenergy Biomass of Kansas project is to construct a plant capable of producing 25 Mgal (95 ML) of cellulosic ethanol and 120 MW of renewable energy from biomass (mix of agricultural waste, wood waste and non-food energy crops). The plant will be located to the west of Hugoton, Kansas, and will create 170 permanent jobs. The Hugoton project is expected to slash CO₂ emissions by approximately 1.7 Mt a year, and is scheduled to be commissioned towards the end of 2011.

Brazil

Sugarcane, the primary raw material used to produce bioethanol in Brazil

Brazil is one of the world's largest markets for bioethanol, and bioethanol production is expected to continue growing sharply thanks to the success of flex-fuel vehicles, which currently account for nearly 90 % of vehicles sold in Brazil and which can run on either gasoline or bioethanol.



Abengoa Bioenergy is the only company worldwide that operates in the world's three largest bioethanol markets: Europe, the United States and Brazil. Having streamlined operations in Brazil, the company is reporting sharp growth in production throughout all its existing plants. It is also weighing up the merits of constructing a new plant and is marketing its production overseas more effectively, thanks to the sales networks the company has in place. Moreover, the company is making technological advances and improving sugarcane bagasse to cellulosic ethanol technology so as to increase production in the mid-term and cut costs efficiently.

The company currently operates three plants: two sugarcane-to-bioethanol plants, with an annual installed capacity of approximately 53 Mgal (200 ML) of ethanol and 642,000 t of sugar, and one plant that produces 30,000 t of sugar and 25,000 t of molasses.

The company is striving to incorporate best sustainability practices, and to reflect this, Abengoa Bioenergía Brasil has staged the first Environment Week (SIMA) in Brazil. The event, which involved 1,500 collaborators from both industry and agriculture, took place during the second week of June and was intended to raise workers' awareness of the need to protect the environment.

SIMA was also attended by numerous companies and public bodies. The week included various entertaining activities related to environmental protection, rounds of interactive questions and answers with the collaborators and informative talks on the environmental goals of Abengoa Bioenergy, and on how society and local communities can help to preserve the environment.

Abengoa Bioenergía Brasil, with head offices in the city of São Paulo, started exporting bioethanol from Brazil to Europe and the United States in 2009, and has been steadily stepping this up over 2010. This important step forward, which is being coordinated alongside Abengoa Bioenergy Trading Europe and Abengoa Bioenergy Trading US, has allowed the company to arbitrage bioethanol sales between its main markets, and also localize new markets and opportunities. This move strengthens the company's standing worldwide, with production facilities and trading presence in the world's top three bioethanol markets.

As part of its drive towards sustainable development, Abengoa Bioenergía Brasil has completed construction on two state-of-the-art power cogeneration facilities with an installed capacity of 70 MW, one of which can be upgraded to 140 MW. The raw material for these two plants is sugarcane bagasse, which is fed into the boilers to produce steam. The steam is then used to generate electricity in order to feed the production processes. The cogeneration plants are located in the state of São Paulo, one at the São Luiz plant in the city of Pirassununga, and the other at the São João plant in the city of São João da Boa Vista.

The company operates the following production facilities in Brazil:

Abengoa Bioenergia São Luiz

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol capacity of 18 Mgal (70 ML).
- Annual sugar production of roughly 285,000 t.
- Annual sugarcane consumption of 3 Mt.



Bioethanol plant in Pirassununga, São Paulo, Brazil

During 2010, operation of a 70 MW cogeneration plant started, using sugarcane bagasse as raw material. The plant is annexed to the existing ethanol and sugar production plant.

Abengoa Bioenergia São João

- Fully owned by Abengoa Bioenergy.
- Annual installed bioethanol capacity of 35 Mgal (130 ML).
- Annual sugar production of roughly 360,000 t.
- Annual sugarcane consumption of 3.5 Mt.



Bioethanol plant in São João, São Paulo, Brazil

During 2010, operation of a 70 MW cogeneration plant started, using sugarcane bagasse as raw material. The plant is annexed to the existing ethanol and sugar production plant.

Abengoa Bioenergia Santo Antônio de Posse

- Annual sugar production of roughly 30,000 t.
- Annual molasses production of roughly 20,000 t.
- Annual sugarcane consumption of 380,000 t.

Sugar production plant in Santo Antônio de Posse, São Paulo, Brazil



This particular sugar and molasses production plant only accounts for business and sales within Brazil, albeit to a lesser extent than the other plants operating in the country. The company is currently streamlining processes to up operational performance.