

ABENGOA



Energy

Water &
Environment

Infrastructures for a sustainable world

Abengoa (MCE: ABG.B/P SM /NASDAQ: ABGB) applies innovative technology solutions for sustainability in the energy and environment sectors, generating electricity from renewable resources, converting biomass into biofuels and producing drinking water from sea water.

Abeinsa is the engineering and construction business group of Abengoa.

Leaders

in the energy, water and environment sectors

70 years
of experience

Proprietary
know-how

Complex
turnkey projects

Capabilities and value chain



Abeinsa is an international leading company in the engineering and construction of infrastructures for sustainable development, carrying out pioneer projects in the energy, water and environment sectors.

Abeinsa is able to offer the best solutions to each client through highly

competitive advantages:

- **Standardization** of activities through clearly defined procedures.
- Solid **engineering base** that allows us to take advantage of growth opportunities:
 - Teams from vertical disciplines around the globe are selected from our 20,000-strong technical experts.
 - Design engineering network with centers in the USA, India, Poland, Mexico, Chile and Spain.

- **In-house capabilities.**

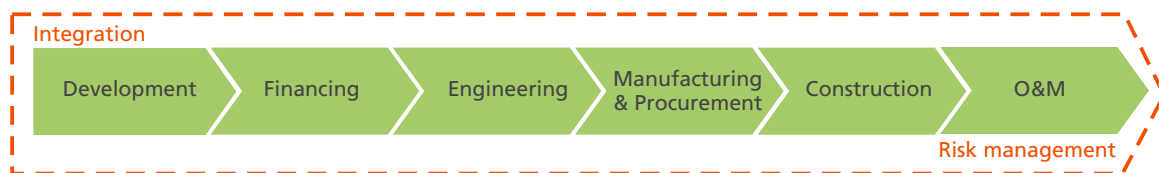
Critical activities are performed using proprietary resources or by establishing stable strategic alliances.

- **Vertical integration** on

value added supplies with our own manufacturing facilities in USA, China, India, Mexico and Spain. (e.g. mirrors, structures, receiver tubes, control rooms, etc).

- **R&D+i** that creates innovative solutions that are applied in the engineering and construction of our projects. Thanks to the active operation, we accumulate experience and knowledge that is reapplied in R&D+i.

>> Abeinsa's activities cover the entire **value chain**:



Integral solutions in energy, water and environment

Power

Simple and combined cycle plants, projects to convert simple plants to combined cycle, engine-based power plants, cogeneration plants and biomass plants.

Solar

Solar Thermal Electricity (STE) plants: tower, parabolic trough, solar-gas hybrid and photovoltaic (PV).

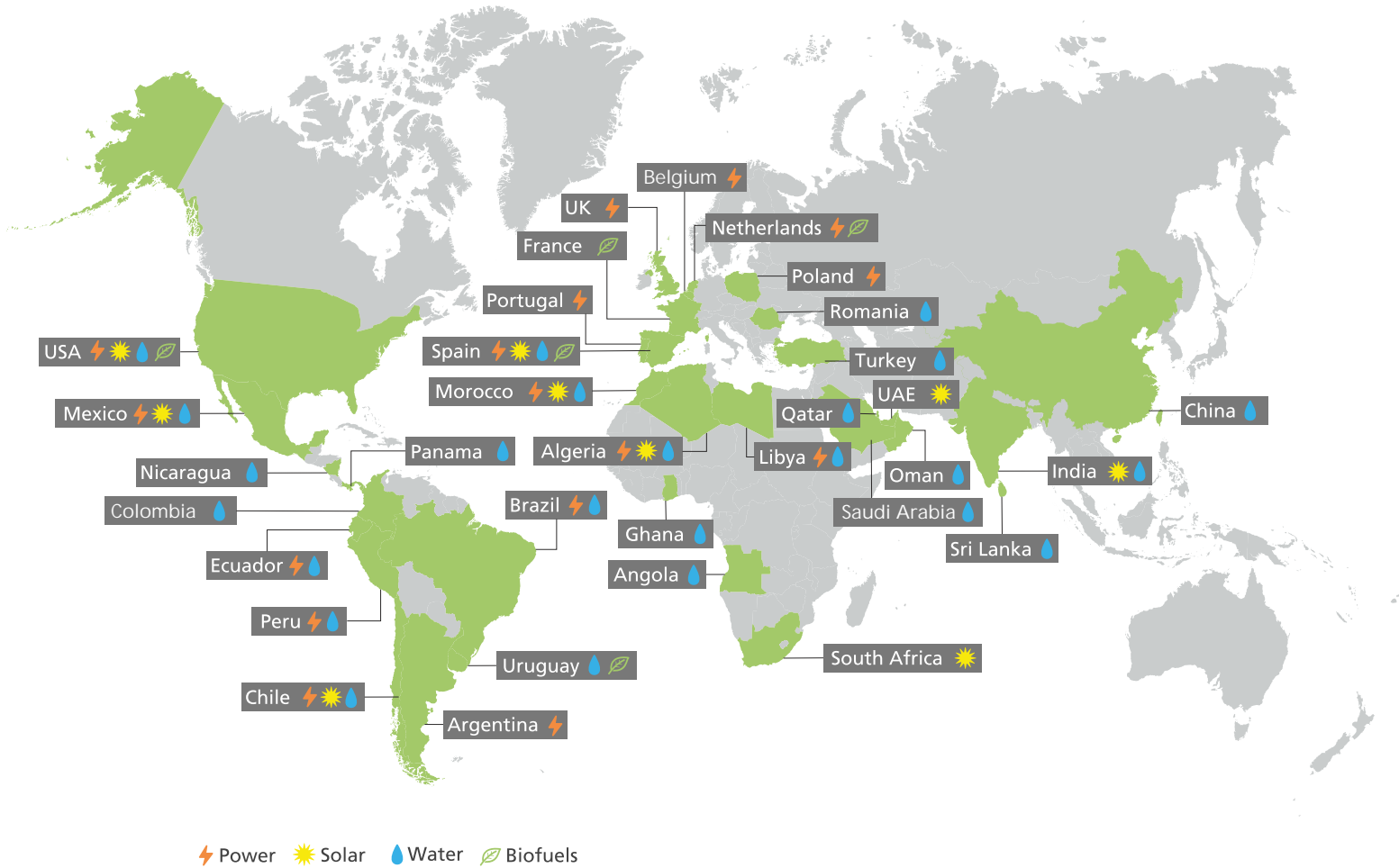
Water & environment

Desalination plants, water treatment & reuse and water transport & distribution.

Biofuels

Bioethanol first generation (1G), bioethanol second generation (2G) and Waste to Biofuels (W2B).

International presence



Abeinsa has a stable presence in more than 40 countries on 5 continents.

Abeinsa develops major engineering projects in different geographies, working within the local requirements and adapting to the client's needs.

Activity sectors

Power

According to ENR
(Engineering News-Record)
2014 ranking,
Abeinsa has been
recognized as:

#1 construction company
for electrical
infrastructures
("power").

#2 construction company
for cogeneration
plants.

#1 construction company
for transmission &
distribution (T&D), since
2008.

>> Centro Morelos combined cycle plant in Mexico.



Activity sectors

Power

In 2014, one of Abeinsa's main achievements was the award of the largest commercial biomass power plant in the world, located in Ghent (Belgium). The plant will produce 215 MW of electricity, burning one hundred percent raw material biomass (wood chips and agro-residues).

Thanks to another project awarded in 2014, Abeinsa will expand the generation complex it is developing in Tabasco by adding 680 MW, reaching a total of 1,245 MW. The project will achieve one hundred percent guaranteed steam supply for the Nuevo Pemex Gas Processing Complex. It will produce clean energy and increase the availability and reliability of the national electric system.

Abeinsa continues working on reference projects in the power sector such as the largest combined cycle plant in Poland (450 MW) and two other combined cycle plants: a 440 MW plant in the United States that will supply electricity to half the population of Portland (Oregon), and a 640 MW plant in Mexico.

During 2014, Abeinsa also successfully completed an engine-based plant (42 MW) in Mexico and a 15 MW cogeneration plant in Pasadena (Texas).

At the beginning of 2015, Abeinsa was chosen by Mexico's Federal Electricity Commission (CFE) to carry out a 924 MW combined cycle plant. This project will produce enough power to supply more than 500,000 homes every year.

>> Cogeneration plant in Sao Luiz, Brazil.



Main references

Power

10 GW of installed capacity in conventional generation projects



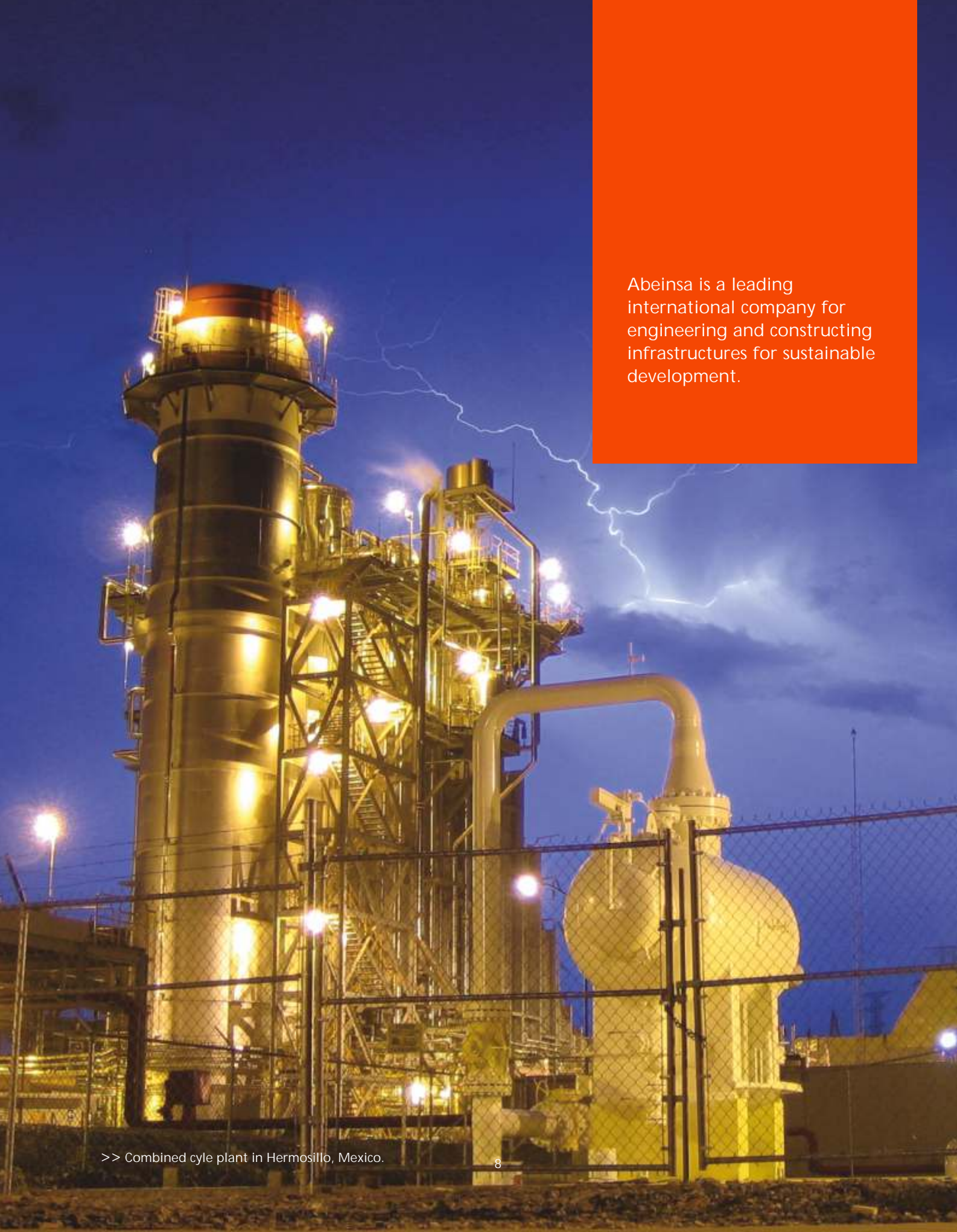
1. **Nuevo Pemex cogeneration plant**
First cogeneration project in a Pemex refinery
- 300 MW
 - Tabasco (Mexico)
 - In operation since 2013

2. **Stalowa Wola combined cycle**
Largest combined cycle in Poland
- 450 MW and 270 MWth district heating
 - Stalowa Wola (Poland)
 - Under construction



3. **Norte III combined cycle**
- 924 MW
 - Ciudad Juárez (Mexico)
 - Under construction

4. **Portland General Electric combined cycle**
- 440 MW
 - Oregon (USA)
 - Under construction



Abeinsa is a leading international company for engineering and constructing infrastructures for sustainable development.

Activity sectors

Solar



ENR magazine ranks the company as the leading international solar energy contractor thanks to its capabilities and experience.

Activity sectors

Solar

During 2014, in the solar sector, we were selected by the National Energy Commission (CNE) of the Chilean Government to supply 950 GWh/year in Chile for 15 years. Moreover, Abeinsa was awarded to build the largest South American solar thermal project in North Chile, which will include two solar plants. Each consists of 110 MW of solar thermal capacity using a concentrating solar tower structure with heat storage, and a 100 MW photovoltaic plant.

Abeinsa is now developing a 50 MW solar tower in South Africa, Khi Solar One, as well as two parabolic trough plants. Kaxu Solar One has 100 MW of capacity and storage capability for three hours, located near the town of Pofadder in the Northern Cape Province. Xina Solar One will produce 100 MW and use a molten salt thermal storage system to store five-hours of energy. Both plants will form the largest solar complex in Africa.

In 2014, Mojave's commercial operation was announced, which is a 280 MW total capacity parabolic trough plant located 100 miles northeast of Los Angeles - near Barstow, California. In the United States, Abeinsa also developed the largest parabolic trough

plant in the world, Solana, a 280 MW installation with six hours of thermal storage, located in Gila Bend, Arizona.

The company's experience in the solar sector is supported by a large list of projects, such as Shams-1 (100 MW), the largest solar plant in the Middle East, located in Abu Dhabi (United Arab Emirates), or the total of 13 solar thermal electric power plants using parabolic trough collectors, each with 50 MW of capacity, that Abeinsa has developed in Spain.

Furthermore, Abeinsa has constructed the world's first two hybrid solar-gas plants in Algeria (150 MW, 20 MW from a solar field) and Morocco (470 MW, 20 MW from a solar field). Hybrid plants combine solar thermal electricity technology with conventional gas or coal systems, an approach which offers major advantages in terms of sustainability, efficiency, services and cost. Abeinsa continues working on the construction of a 14 MW solar field in Mexico, which will be integrated into a combined cycle plant, creating the country's first hybrid solar-gas power plant (470 MW).

Main references

Solar

Abeinsa is a pioneer in the construction of solar energy plants with more than 2,200 MW completed and 600 MW under construction

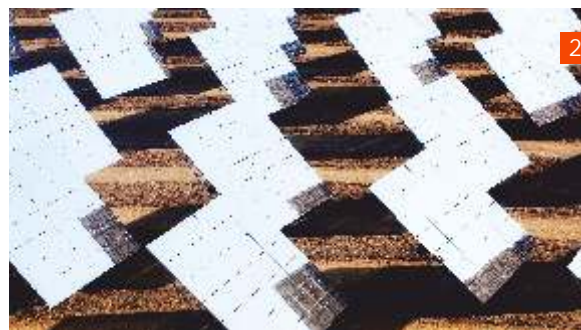


1

1. Solana
- Largest parabolic trough plant in the world
 - 280 MW with storage
 - Technology: parabolic trough
 - Arizona (USA)
 - In operation since 2013



3




2

2. Atacama - 1
- 110 MW
 - Technology: tower
 - 18 hours thermal storage
 - Atacama desert (Chile)
 - Under construction
3. Ain Beni Mathar
- Largest hybrid solar-gas plant in the world
 - 470 MW (20 MW from solar system)
 - Technology: ISCC
 - Ain Beni Mathar (Morocco)
 - In operation since 2010



4

4. Kaxu Solar One
- 100 MW
 - Technology: parabolic trough
 - 3 hours thermal storage
 - Pofadder (South Africa)
 - In operation since 2015



The thermal storage tanks in Solana are able to produce electricity for six hours after the sun goes down, satisfying Arizona's peak demand during the summer months.

Activity sectors

Water & environment



According to ENR 2014 ranking, Abeinsa has reached 2nd place for water treatment and desalination plants.

>> Seawater desalination plant in Cartagena, Spain.

Activity sectors

Water & environment

During 2014, we were awarded reference projects in the water and environment sector around the world:

- In the USA, the first-of-its-kind water delivery project in the country was awarded, which will supply 168,970 m³/day of water to the city of San Antonio, Texas.
- Mamacocha, a hydroelectric plant which will supply 20 MW of clean power to more than 10,000 households in Peru.
- The first desalination plant in Chile, located in Mejillones in the Antofagasta region, which will supply 4,800 m³ of water per day to AES Gener's power plant in Angamos.
- Morocco's largest capacity desalination plant, which will supply 100,000 m³/day of drinking water to the inhabitants of Greater Agadir, contributing to the major development taking place in this region.
- An intelligent network of supply and sewerage pipelines covering nearly 250 km in Denizli, Turkey, which will supply water and sanitation to the city's population of approximately 500,000 people.
- The world's first large scale desalination plant to be powered by solar energy, in Saudi Arabia. The plant will produce 60,000 m³/day to supply the Al Khafji region.

In Mexico, Abeinsa continues working on the El Zapotillo aqueduct project. This is one of the largest hydraulic infrastructures in the international market which will supply drinking water to 2.5 million people.

In addition, Abeinsa completed the construction of a desalination plant using reverse osmosis technology in Oman. The plant will have the capacity to desalinate 45,000 m³ of water per day to supply more than 225,000 inhabitants.

Abeinsa has also finalized the construction of two water supply projects: one in Angola, to supply 16.3 ML of drinking water in the province of Cunene, and a project to provide with 22,000 m³/day of desalinated water to the mining sector in the Copiapó region, in Chile.

In the irrigation sector, the company has completed projects to sustainably manage water by implementing irrigation systems or modernizing existing systems covering more than 500,000 ha.



>> Brackish water desalination plant in Donna, Texas (USA).

Abeinsa is providing a solution to the urban waste problem by converting it into ethanol, diesel or electricity. The solution has already been displayed with the waste-to-energy plant in Glendale (Arizona, USA), sorting and recycling up to 180,000 tons of municipal solid waste (MSW) per year. In the second phase this project will be able to produce 15 MW of electricity.

In addition, Abeinsa's demonstration plant, in Salamanca (Spain), is in operation and produces 1.5 ML of bioethanol from 25,000 t MSW.

Main references

Desalination

Abeinsa has constructed desalination plants with a combined capacity of more than 1.5 million m³/day



1

1. Qingdao desalination plant

Pioneer project in China

- 100,000 m³/day
- Qingdao (China)
- In operation since 2013



2

2. Chennai desalination plant

Largest reverse osmosis desalination plant in India

- 100,000 m³/day
- Chennai (India)
- In operation since 2010



3

3. Skikda desalination plant

The Algerian desalination program's first desalination plant to become operational

- 100,000 m³/day
- Skikda (Algeria)
- In operation since 2010



4

4. Agadir desalination plant

- Drinking water supply for city Great Agadir
- 100,000 m³/day
- Agadir (Morocco)
- Under construction

Main references

Water treatment

Abeinsa has constructed drinking water plants to supply more than eight million people and treatment plants with a combined capacity of over 1,500,000 m³/day



1



3



4



2

1. **Arequipa supply**
 First contract made in Peru using public-private collaboration
 - 130,000 m³/day
 - Arequipa (Peru)
 - In operation since 2012

2. **Ranilla treatment plant expansion**
 - 90,000 m³/day
 - Seville (Spain)
 - In operation since 2008

3. **Ence's paper and pulp factory industrial water treatment plants**
 - 66,000 m³/day
 - Huelva and Pontevedra (Spain)
 - In operation since 2004

4. **EDR reuse of waste water treatment plant effluent in Baix Llobregat**
 Largest reuse by EDR project
 - 60,000 m³/day
 - Barcelona (Spain)
 - In operation since 2009

Main references

Hydraulic infrastructures

More than 300 projects undertaken in the last 60 years and more than 400 MW of installed capacity



1. "El Zapotillo" aqueduct

- Capacity: 328,000 m³/day
- Supply network
Length: 139 km
Diameter: 2,000-2,500 mm
- Pumping system
Power: 24 MW
Flow rate: 5.6 m³/s
- Jalisco and Guanajuato (Mexico)
- Under construction



2. San Antonio Water System

- Capacity: 168,970 m³/day
- Supply network
Length: 225 km
Diameter: 1,400-1,600 mm
- San Antonio, Texas (USA)
- Pre-construction



3. Navarra canal 1st phase irrigation area

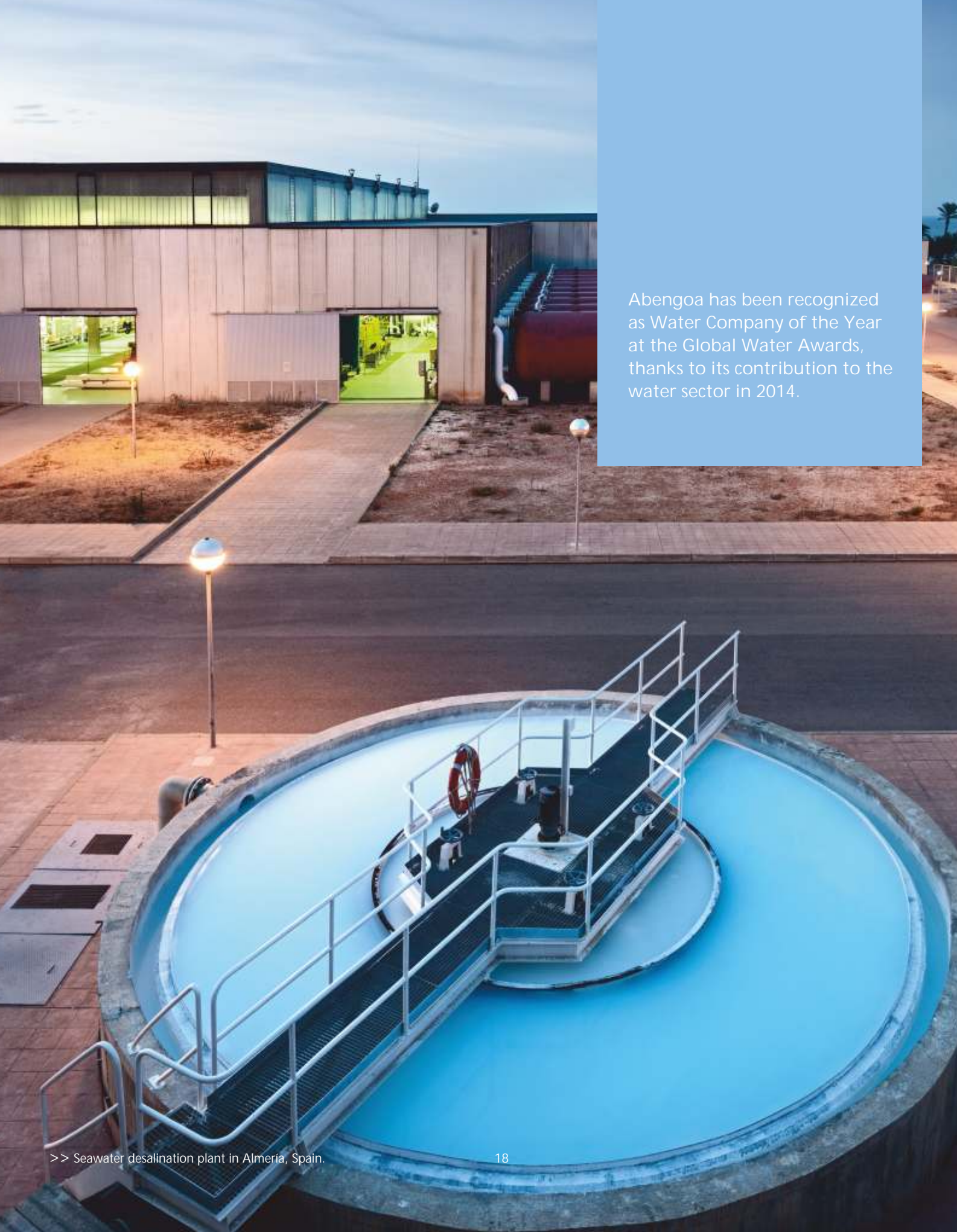
First grant of irrigation in Europe

- 23,600 ha
- Navarra (Spain)
- In operation since 2011



4. Itoiz reservoir hydroelectric power station

- 27 MW
- Navarra (Spain)
- In operation since 2008



Abengoa has been recognized as Water Company of the Year at the Global Water Awards, thanks to its contribution to the water sector in 2014.

Main references

Waste

Abeinsa has a global construction capacity for waste recovery



1. Sulfuric acid plant

- 120,000 t/year of sulfur
- 350,000 t/year of sulfuric acid and oleum
- Bilbao (Spain)
- In operation since 2012



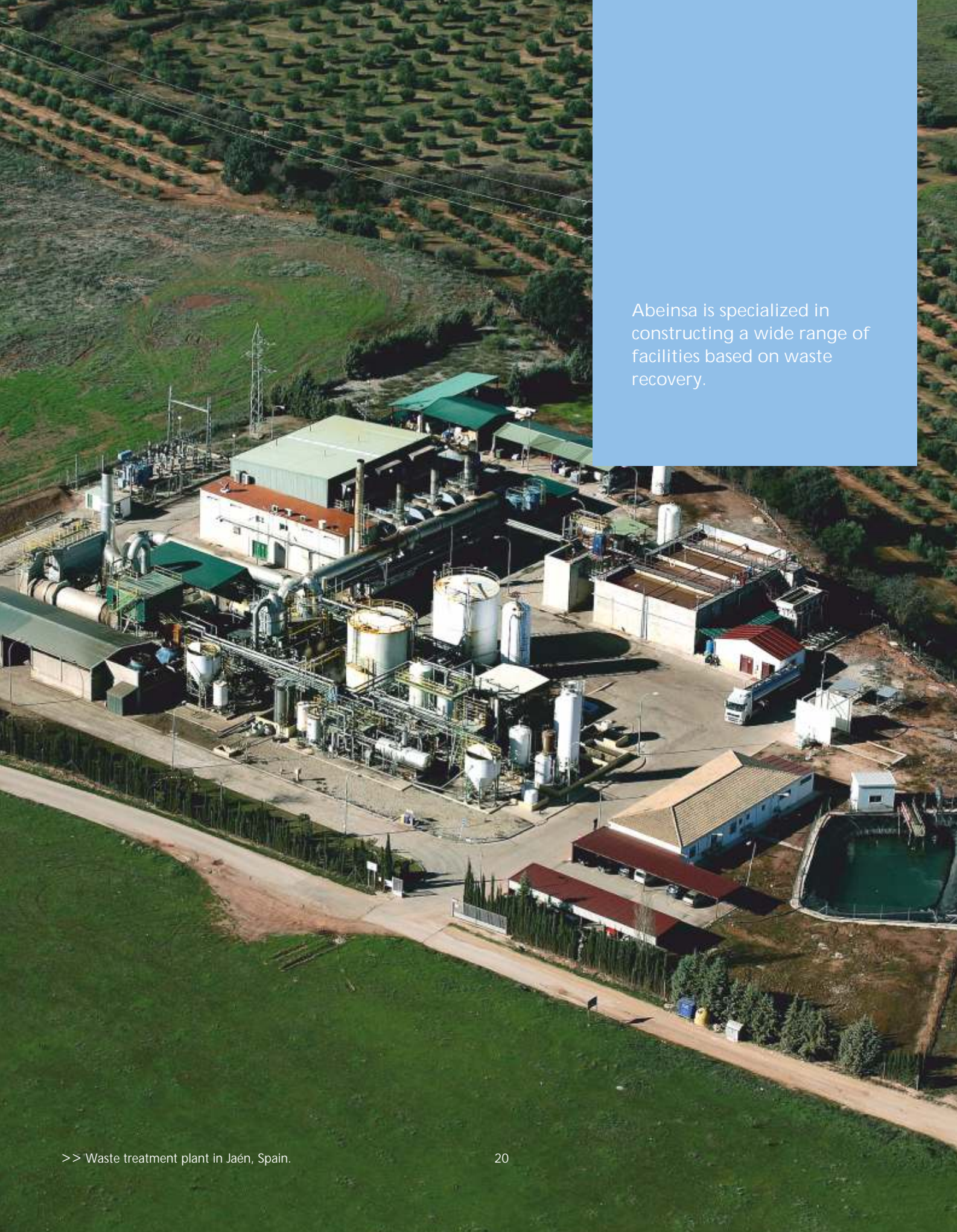
2. Waste to biofuels Babilafuente

- 25,000 t/year of MSW
- 1.5 ML of bioethanol
- Salamanca (Spain)
- In operation since 2013



3. Waste to energy plant

- 180,000 t/year of MSW
- Arizona (USA)
- In operation since 2014



Abeinsa is specialized in constructing a wide range of facilities based on waste recovery.

Activity sectors

Biofuels



In the second half of 2014, one of the first commercial second generation bioethanol plants started operating in Hugoton, Kansas (USA). The plant produces 95 ML of bioethanol from agricultural waste and up to 20 MW of electricity from the world's most abundant source of organic raw material – plant fiber – or “cellulosic biomass,” which is produced locally.

Abengoa is using its patented technology, developed and tested over the last ten years, which is already contributing to the socio-economic development of the region. The Hugoton plant opening marks the first-ever commercial deployment of Abengoa's proprietary enzymatic hydrolysis technology, which turns biomass into fermentable sugars that are then converted to ethanol.

In addition, Abeinsa completed the construction of a new bioethanol plant in Uruguay with a capacity of 70 ML/year.

Apart from these references, Abeinsa has a significant experience in this sector thanks to the construction in Netherlands of Europe's largest bioethanol plant (480 ML), which has been operating at full capacity since 2010, and two plants of more than 300 ML that have also been operating since 2010 in the United States.

The company has proven its world leadership in this industry, achieving a vertical integration that no other player is currently offering to the market: the one-stop-shop in biofuels. We are therefore able to control and participate in the entire biofuel value chain, that includes, not only engineering, construction and financing capacities but also the biomass management and its own developed enzymes and yeasts by providing a tailor made solution adapted to every customer's needs and demands.



Main references

Biofuels

Abeinsa has constructed biofuels plants that produce more than 2,500 ML/year



- 1. Hugoton**
 - One of the first second-generation bioethanol plants for commercial operation
 - 95 ML/year
 - From agricultural waste
 - Kansas (USA)
 - In operation since 2014
- 2. Rotterdam bioethanol plant**
 - Largest biofuels plant in Europe
 - 480 ML/year and 360,000 t DDGS
 - From cereal
 - Rotterdam (Netherlands)
 - In operation since 2010
- 3. France bioethanol plant**
 - 250 ML/year and 145,000 t DDGS
 - From cereal (corn) and wine alcohol
 - Lacq (France)
 - In operation since 2009
- 4. Paysandu bioethanol plant**
 - 70 ML/year and 49,000 t DDGS
 - From sorghum, corn, barley and wheat
 - Paysandu (Uruguay)
 - In operation since 2014



>> Hugoton bioethanol plant turns crop residues into a sustainable fuel source.



We have world leading facilities that produce biofuels, leading to a reduction in greenhouse gas emissions and helping fight against climate change.

References

Power

Natural gas combined cycle

Project	Location	Client	Capacity (MW)	Completion date
CCGT Norte III	Mexico	Abengoa - Comisión Federal de Electricidad	924	Under construction
CCGT A4T	Mexico	Abengoa	680	Under construction
CCGT Portland General Electric	USA	Portland General Electric	440	Under construction
CCGT Stalowa Wola	Poland	Elektrociepłownia Stalowa Wola	450	Under construction
CCGT Centro Morelos	Mexico	Comisión Federal Electricidad	640	Under construction
CCGT Hassi R'Mel	Algeria	Abengoa - Neal - Cofides - Sonatrach	130	2011
CCGT Ain Beni Mathar	Morocco	Office National de L'Electricité	450	2010
CCGT Emilio Portes Gil	Mexico	Comisión Federal de Electricidad	225	2007
CCGT Hermosillo	Mexico	Comisión Federal de Electricidad	230	2006
CCGT Arcos "A"	Spain	Iberdrola Generación	800	2004
CCGT El Sauz	Mexico	Comisión Federal de Electricidad	414	2003
CCGT Bahía de Bizkaia	Spain	Consortio Bahía de Bizkaia	800	2003
CCGT Salta	Argentina	Termoandes	630	2000
CCGT Nehuenco	Chile	Siemens	370	1999
CCGT Ventanilla	Peru	Proyectos Andinos de Energía	300	1998

Coal

Mejillones thermal power plant	Chile	Ansaldo Energía	160	1998
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Engine power plants

Baja California Sur IV	Mexico	Comisión Federal de Electricidad	42	2014
Baja California Sur II	Mexico	Comisión Federal de Electricidad	43	2007
Puerto San Carlos II	Mexico	Comisión Federal de Electricidad	40	2001



References

Power

Biomass

Project	Feedstock	Location	Client	Capacity (MW)	Completion date
Ghent biomass plant	Wood chips and agro-residues	Belgium	Belgian Eco Energy	215	Pre-construction
Hugoton cogeneration plant	Agro-residues	USA	Abengoa	20	2013
Sao Joao cogeneration plant	Sugarcane bagasse	Brazil	Abengoa	70	2010
Sao Luiz cogeneration plant	Sugarcane bagasse	Brazil	Abengoa	70	2010
EHN Sangüesa	Cereal straw	Spain	Energía Hidroeléctrica de Navarra	29	2003
Fife biomass plant	Chicken manure	UK	Energy Power Resources	13	2000
El Tejar	Olive waste	Spain	Vetejar	13	1995

Cogeneration

Project	Location	Client	Capacity (MW)	Completion date
Nuevo Pemex cogeneration third train plant	Mexico	Abengoa - Pemex	265	Under construction
Pasadena cogeneration plant	USA	Rentech Nitrogen	15	2014
Nuevo Pemex cogeneration plant	Mexico	Abengoa - Pemex	300	2013
Abengoa Bioenergy Netherlands cogeneration plant	Netherlands	Abengoa	45	2010
Biocarburantes de Castilla y León	Spain	Abengoa	25	2006
Carriço	Portugal	Carriço Cogeração	30	2003
El Romeral	Spain	LOCS Oil	8	2002
Galicia bioethanol plant	Spain	Abengoa	25	2002
Sniace cogeneration plant	Spain	Sniace	83	2001
Motril cogeneration plant	Spain	Torraspapel	48	2001
Ecocarburantes Españoles	Spain	Ecocarburantes Españoles	21	2000



References

Solar

STE Tower

Project	Location	Client	Capacity (MW)	Completion date
Atacama-2	Chile	Abengoa	110	Under construction
Atacama-1	Chile	Abengoa	110	Under construction
Khi Solar One	South Africa	Abengoa - IDC	50	Under construction
PS20	Spain	Abengoa	20	2009
PS10	Spain	Abengoa	11	2007

STE Parabolic trough

Xina Solar One	South Africa	Abengoa - IDC	100	Under construction
Ashalim	Israel	Abengoa - Shikun & Bunui	110	Under construction
Kaxu Solar One	South Africa	Abengoa - IDC	100	2015
Mojave	USA	Abengoa	280	2014
Solana	USA	Abengoa	280	2013
Shams 1	UAE	Abengoa - Total - Masdar	100	2013
Solaben 1 & 6	Spain	Abengoa	50 x 2	2013
Solaben 2 & 3	Spain	Abengoa - ITOCHU Corporation	50 x 2	2012
Solacor 1 & 2	Spain	Abengoa - JGC Corporation	50 x 2	2012
Solar field in India	India	Indian Institute Technology of Bombay	1	2012
Helios 1 & 2	Spain	Abengoa	50 x 2	2012
Helioenergy 2	Spain	Abengoa - E. ON	50	2012
Helioenergy 1	Spain	Abengoa - E. ON	50	2011
Solnova 4	Spain	Abengoa	50	2010
Solnova 1 & 3	Spain	Abengoa	50 x 2	2009

ISCC

Agua Prieta	Mexico	Comisión Federal de Electricidad	14	Under construction
Hassi R'Mel	Algeria	Abengoa - Neal - Cofides - Sonatrach	20	2011
Ain Beni Mathar	Morocco	Office National de L'Electricité	20	2010

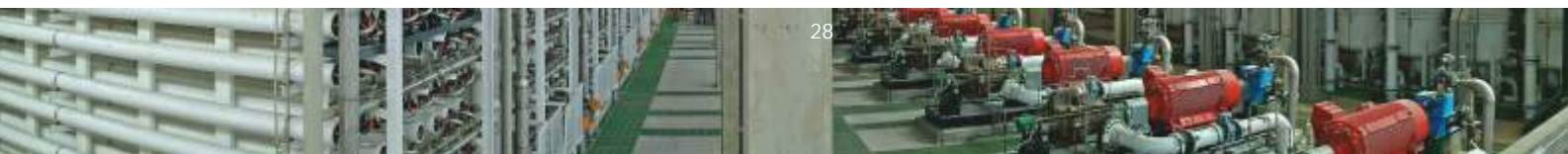
Photovoltaic

Atacama-2	Chile	Abengoa	100	Under construction
Atacama-1	Chile	Abengoa	100	Under construction
Lone Valley	USA	EDP Renováveis	30	2014
Mount Signal	USA	AES Solar	200	2014

References

Desalination

Project	Location	Key features	Capacity (m ³ /d)	Completion date
Al-Khafji	Saudi Arabia	Seawater desalination plant with pre-treatment based on Dissolved Air Flotation (DAF), sand filters and ultrafiltration	60,000	Under construction
Agadir	Morocco	Seawater desalination plant by RO with a pre-treatment by ultrafiltration	100,000	Under construction
AES Gener	Chile	WTP to replace existing system with 2-stage RO system, pre-filtering and ultrafiltration (UF)	4,800	Under construction
Accra	Ghana	Open intake, pre-treatment, disinfection, coagulation and self cleaning filters	60,000	2015
Ténès	Algeria	Pre-treatment coagulation-flocculation, open filters and cartridge filtration	200,000	2015
Barka I	Oman	Draws feed water from heat exchanger of existing power plant cooling system	45,000	2014
Qingdao	China	Ultrafiltration, RO, energy recovery and backwash chemical cleaning	100,000	2013
Donna	USA	Brackish RO water treatment facility supplies water to 3 counties	9,500	2012
Honaine	Algeria	Coagulation-flocculation, sand filtration and RO membranes	200,000	2011
Chennai	India	Seawater intake, coagulation-flocculation, decantation, sand filtration and RO	100,000	2010
Skikda	Algeria	Process features coagulation-flocculation, sand filtration and RO	100,000	2009
Baix Llobregat	Spain	Pressure filters, cartridge filters, followed by EDR membranes	60,000	2009
Cartagena	Spain	Ferric chloride coagulation, sand filtering, cartridge microfiltering and RO	65,000	2005
El Atabal	Spain	Brackish water treatment facility in which RO achieves 80 % recovery ratio	165,000	2005
Carboneras	Spain	Open intake, settlement tanks, coagulation-flocculation, sand filters and RO	120,000	2005
Almería	Spain	Beach wells, coagulation, sand filtration, cartridge microfiltering and RO	50,000	2005
Barranco Seco II	Spain	Expanded the plant process by adding a tertiary treatment by addition of EDR	28,600	2002



References

Wastewater treatment

Project	Location	Key features	Capacity (m ³ /d)	Completion date
Madrid I	Colombia	Existing WWTP expansion by active sludge technology. New aeration system tank, secondary settling tank and sludge pumping station.	14,200	Under construction
Peñón del Cuervo	Spain	Lamellar settling, sand filters, membrane ultrafiltration, UV disinfection and chlorination	20,000	Under construction
Alcoy	Spain	Tertiary MBR treatment to allow effluent for industrial process water and irrigation water	15,000	Under construction
Bargas	Spain	Gravity collector, pump stations, extended aeration and solids tanks	20,000	Under construction
Pariachi	Peru	Activated sludge process, treated water is recycled for service water at the plant	37,800	2013
Almonte-Rociana Bollullos	Spain	Features an effluent reservoir to serve as a nesting ground for the area's rich bird fauna	8,300	2013
Jerez de la Frontera	Spain	4 activated sludge biological reactors, belt press and a biogas cogeneration unit	70,000	2011
Ranilla	Spain	Activated sludge biological process with nutrient removal and tertiary water treatment, and refining treatment with reverse osmosis	90,000	2009
Lebrija	Spain	Pretreatment, lamellar settling, biological digestion, sludge thickening and centrifuge	8,000	2007
Cellulose pulp effluent	Spain	Biological process produces bio-solids used as agricultural fertilizer and plant boiler fuel	66,000	2005
Lluchmayor	Spain	Tertiary process utilizing polyelectrolyte, open sand and chlorination filters	15,900	2004
El Rincón Victoria	Spain	Biological and tertiary treatment, sludge homogenization and dewatering	15,000	2002
Barranco Seco II	Spain	EDR tertiary treatment, effluent used for agricultural irrigation, local parks/gardens	24,000	2002
Buin Oriente Linderos	Chile	Gravity interceptor, lift station, biological treatment, activated sludge and centrifuge	9,200	2002
Calatayud	Spain	Low load activated sludge biological reactor, thickener and centrifuge	10,000	2002
Vendrell	Spain	Aeration, primary/secondary settling, disinfection and anaerobic digestion	21,000	2000



References

Drinking water treatment

Project	Location	Key features	Capacity (m ³ /d)	Completion date
Zapotillo	Mexico	Reservoir intake, treatment plant and pipeline of more than 139 km in length	328,000	Under construction
Yopal	Colombia	Superficial water intake, pumping wells, pipelines to DWTP. Conventional technology with lamellar decanters.	67,400	Under construction
Cenajo	Spain	5.8 km tunnel, treatment plant, distribution, pump stations and energy recovery	518,400	Under construction
Ames	Spain	River intake and treatment plant. Produced sludge is thickened and dewatered	15,000	Under construction
Arequipa	Perú	DWTP with a capacity of 1.50 m ³ /s	130,000	2012
El Conquero	Spain	An expansion to address trihalomethane limits due to pesticides	90,000	2011
Piñana	Spain	Features a sludge system with lamellar settlers, thickeners and centrifuge	60,000	2011
Reus	Spain	Pretreatment, clarification, filters, disinfection, sludge thickening and dewatering	30,000	2011
Ciudad Sandino Managua	Nicaragua	3 collection wells, storage tanks, associated facilities and pipelines	6,000	2009
Loja	Ecuador	Aeration chambers, rapid mix, flocculation, lamellar settling and sand filters	43,200	2004
Olivares	Spain	Works of modernization and expansion of the DWTS involving the installation of a sludge treatment and recovery of water from leachate and drain to improve hydraulic performance	95,000	2001
Huesna	Spain	Flocculation-coagulation, superpulsating settlement, open sand filters and storage	90,000	1997
Emasesa II	Spain	Ozonation plant as part of an emergency action program	216,000	1993



References

Hydraulic infrastructures

Supply and distribution

Project	Location	Key features	Capacity		Completion date
			Distance (km)	Diameter (mm)	
San Antonio	USA	216 km of water supply pipe with 18 production wells, 3 pumping stations and a 40 ML water tank at delivery point	216	1,400-1,600	Pre-construction
Denizli	Turkey	Conduction of polyethylene and concrete piping and trenching	250	300-1,200	Under construction
Zapotillo	Mexico	Reservoir intake, treatment plant and pipeline	139	2,000-2,500	Under construction
Ratnapura	Sri Lanka	Water treatment plant, Kalu Ganga River intake, storage tank and 17 km of pipeline	17	200-500	Under construction
Caceres	Spain	3 pumpings stations and pipeline to supply water to 50,000 people and 13 municipalities	78.5	1,100	Under construction
Viar	Spain	Canal improvements, aqueducts, tunnels, drainage system, service roads and bridges	30	500	2015
Copiapó	Chile	Transporting desalinated water from Caldera to supply mining operations and villages	116	150-560	2014
Cunene	Angola	River intake, treatment, 4 pump stations, pipeline, 6 reservoirs	100	560-710	2014
Arequipa	Peru	River intake, pipeline, and treatment plant including 2 km of tunnel	11	1,100-1,300	2012
Oja-Tirón	Spain	Treatment plant, pump stations, storage tanks and all ancillary facilities of Hostalric	138	700-400	2012
Saint Celoni	Spain	This section of conduction connects the city of Saint Celoni with Hostalric	17	1,400	2011
Fuensanta Trinidad	Spain	Challenging geotechnical aspects with foundation depths of 30 m	1.3	1,400-1,800	2010
Guiamets	Spain	Reservoir intake, 3 pump stations and pipelines for irrigation use	90	1,200	2010
Jorf Lasfar	Morocco	Seawater intake to feed the cooling system of a new phosphoric acid plant	2.5	2,500	2009
Segriá Sud	Spain	Intake pump station, transfer tank, booster pump station, pipeline and access roads	1.2	1,200-1,500	2007
Júcar/Vinalopó Cortes	Spain	Installed 70 steel pipe sections (122 cm) into a 3.2 km microtunnel	4	1,800-2,200	2007
Loja	Ecuador	2 dams, treatment plant, reservoirs and pipelines	35	800-700	2004
Negratín-Almanzora	Spain	Well and pump station on the shore of the Negratin Reservoir	6	1,000-1,200	2004



References

Hydraulic infrastructures

Hydropower

Project	Location	Key features	Capacity (MW)	Completion date
Mamacocha	Peru	2 horizontal Francis turbines producing 20 MW	20	Under construction
Itoiz	Spain	122 m, 2 Francis turbines and 13.2 kVA substation	27	2008
Sahechores	Spain	2 vertical Pelton turbines, fed by a 3.7 m diameter, 365.8 m steel penstock	21	2007
Tijola and Los Manueles	Spain	2 plants equipped with vertical Pelton turbines	11	2006
Cerrato	Spain	2 vertical Kaplan turbines, each producing 2.45 MW with 20 m of head	5	1999
Guadalhorce-Guadalteba	Spain	Underground power station houses a Francis turbine with 55 m of head	6	1996
Zufre	Spain	Horizontal Francis turbine generates 5 MW with 58 m of head	5	1995
El Villar	Spain	Underground power station features a vertical Francis turbine with 36.6 m of head	6	1995
Atazar	Spain	2 vertical Francis turbines with 55 m of head	10.8	1995
Riosequillo	Spain	An underground power station contains a vertical Francis turbine with 44 m of head	7.3	1995
Puentes Viejas	Spain	Features a vertical Francis turbine with 44 m of head	8	1995



References

Hydraulic infrastructures

Irrigation systems

Project	Location	Hectares	Completion date
Modernization of the Canal de Estremera Irrigation Association irrigable area	Spain	2,900	2012
1st phase of irrigable area in Navarre Canal (Navarre)	Spain	23,611	2011
Extension, modernization and consolidation of the irrigable area of the Sur - Andévalo Irrigation Community (Huelva)	Spain	9,232	2010
Modernization of the Marismas del Guadalquivir irrigable area (Seville)	Spain	12,800	2010
Irrigation channel between Xerta and Sènia. Upgrade of the section of the channel between km point 2+430 and km point 14+680 (Tarragona)	Spain	16,500	2010
1st phase of works to improve and modernize irrigation in the Babilafuente Canal (Salamanca)	Spain	3,688	2009
Improvements to section B of the Alguerri-Balaguer Canal (Lleida)	Spain	4,937	2005
Modernization of Sector B-XII of the Bajo Guadalquivir Irrigation Community (Lebrija, Seville)	Spain	15,000	2005



References

Biofuels

Bioethanol 1G

Project	Location	Client	Production (ML/year)	Completion date
Paysandu bioethanol plant	Uruguay	Alcoholes de Uruguay	70	2014
Illinois bioethanol plant	USA	Abengoa	333	2010
Indiana bioethanol plant	USA	Abengoa	333	2010
Rotterdam bioethanol plant	Netherlands	Abengoa	480	2010
France bioethanol plant	France	Abengoa	250	2007
Castilla y León bioethanol plant	Spain	Abengoa	200	2006
Galicia bioethanol plant	Spain	Abengoa	195	2002
Ecocarburantes Españoles	Spain	Abengoa	100	2000

Bioethanol 2G

Hugoton	USA	Abengoa	95	2014
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Waste to biofuels

Sierra biofuels plant	USA	Fulcrum BioEnergy	38	Pre-construction
W2B Babilafuente	Spain	Abengoa	1.5	2013

Biodiesel

Biodiesel San Roque	Spain	Abengoa	200	2008
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ETBE

ETBE Huelva	Spain	ETBE Huelva	46	2004
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