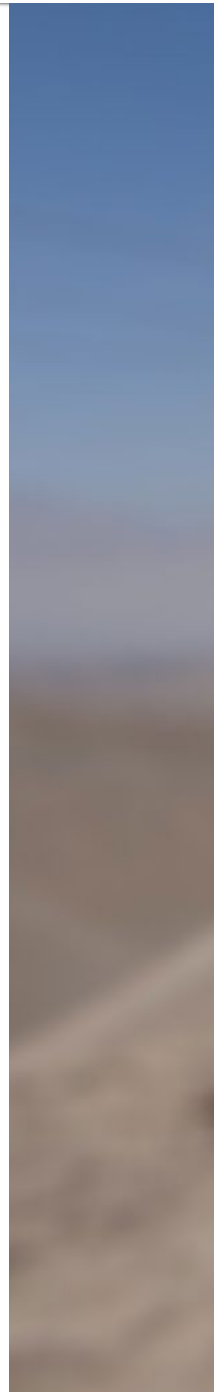


06.3 Engineering and construction

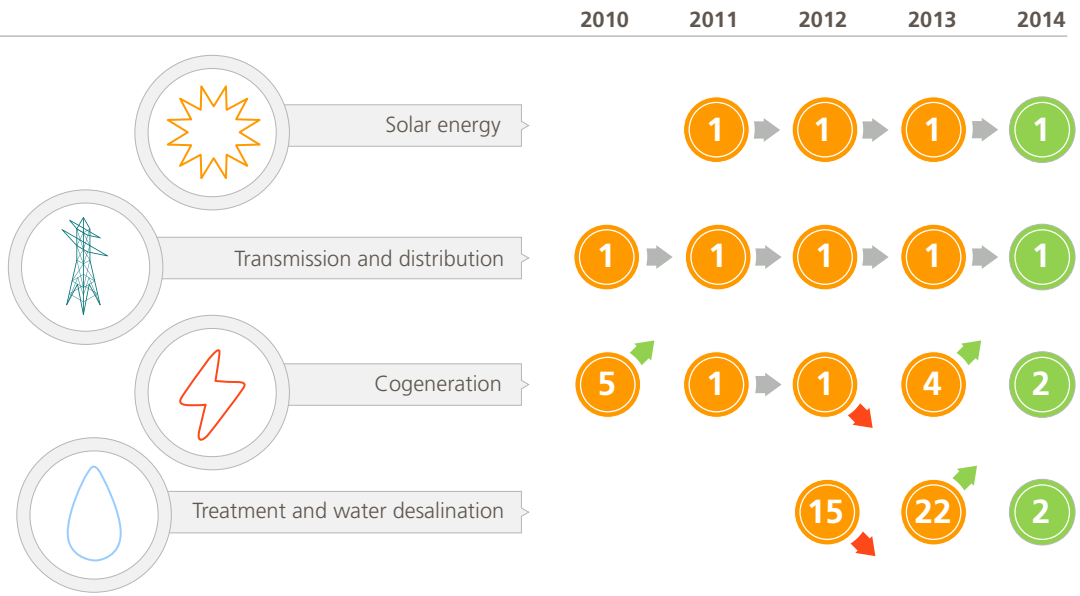
With over seventy years of experience in the energy and water engineering and construction business, Abengoa is a renowned expert in offering groundbreaking turnkey technology solutions across the world: solar powers plants, integrated solar-gas plants, conventional power plants and biofuel plants, hydro infrastructures, including large-scale desalination plants, rail electrification systems, wind farms and sprawling electrical power transmission systems, among others.

Key financial figures	2012	2013	2014	Chg. 14-13 (%)
Revenue (€M)	3,789	4,832	4,515	(7) %
EBITDA (€M)	624	806	806	–
EBITDA margin (%)	16	17	18	6%

Engineering and construction

Abengoa ranks **among the twenty largest international construction firms** according to the table published by ENR, the prestigious international journal of the construction sector. By region, Abengoa ranks fifth in Latin America and seventh in the United States. Moreover, the company has retained its position as international leader in electrical infrastructure for the second straight year and has now made it four years as the leading international contractor in solar energy. A further highlight for this year's report is Abengoa's climb up the cogeneration market to second place, a feat it has managed to replicate in the water treatment and desalination sector.

The company's main projects in engineering and construction by region are as follows:



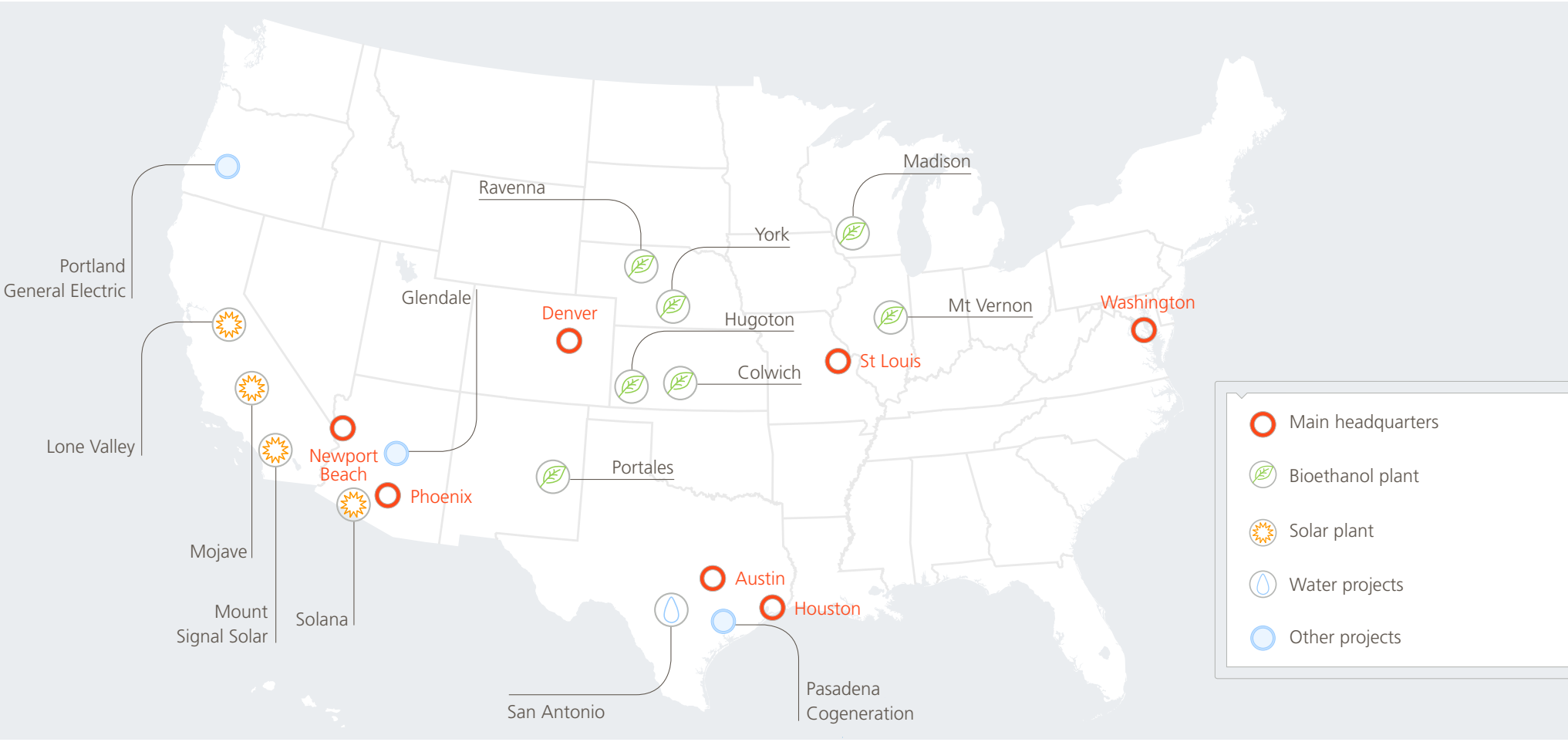
Abengoa cements its position in the international market according to the table published by ENR

America

United States

Abengoa has swiftly consolidated its position in the United States, where it is already the **seventh largest international contractor** in terms of sales revenues. The company rolled out projects across all its sectors of activity, with key areas being renewable energy generation projects to champion the development of renewable infrastructures within the United States, which is strongly committed to the sector.

Abengoa has more than **1,200 MW of capacity either installed or under construction in the United States.** This power is generated by a mix of conventional power generation, photovoltaic and solar thermal power plants and waste-to-energy plants, all serving and powering 350,000 households. The company operates across 12 states and has projects and offices in 22 cities, providing employment to over 1,800 people.



Abengoa in the United States

Of the main projects awarded to the company in 2014, we would highlight the contract to develop a **unique water-related project requiring the supply of materials and a treatment plant capable of generating 168,970 m³/day of water every year for the city of San Antonio**, Texas. Abengoa has also been tasked with operating the facility over a 30-year term.

Abengoa completed various projects in the country in 2014. In addition to Mojave and Hugoton - two landmark projects for the company - it also completed work on the world's **largest single-tracker photovoltaic plant**, namely Mount Signal Solar in San Diego (California), with an impressive 206 MW of installed capacity. It also completed **a waste-to-energy** (W2E) **plant** at Glendale, Arizona, which is capable of generating 15 MW of electric power.

Abengoa completed work on the world's largest single-tracker plant in California, with 206 MW of installed capacity

Moreover, the company is developing **two photovoltaic plants** with a combined capacity of 30 MW at San Bernardino, California; a 15 MW cogeneration plant in Pasadena (Texas) and a **440 MW combined cycle facility** to supply enough electricity for half the population of Portland (Oregon).

Mexico

Abengoa is **one of the leading companies in the Mexican electricity and power generation sectors**, having been operating in the country for over 30 years. Vouching for the company's credentials in the country are its 3,900 MW in conventional power generation, upwards of 6,300 kilometers of power transmission lines, over 120 substations and a water treatment facility that will soon be able to process 328,000 m³/day of water.

The company has been chosen to **upgrade the Nuevo Pemex cogeneration plant** to 1,245 MW. The venture will guarantee 100 % usage of the steam generated by the Nuevo Pemex Gas Processing Complex, while generating clean energy, the result being improved availability and reliability for the national power grid.

In the water sector, highlights include the **Zapotillo aqueduct, one of the most impressive hydro projects on the international market**. The structure will provide a sustainable supply of drinking water to over one million inhabitants of the state of Guanajuato. The company will also operate the concession for 25 years.

Abengoa is continuing construction work on the Centro Morelos **combined cycle plant**. Operating at 640 MW, the facility will generate enough energy to power over 280,000 households. The Mexican Federal Electricity Commission has once again placed its trust in Abengoa by entrusting it to construct a **924 MW combined cycle plant** at Juárez. The company will also be responsible for the facility's operation and maintenance under a 25-year contract. The plant will generate enough electricity to power over 500,000 households each year.

Abengoa is constructing Mexico's largest combined cycle plant

In the manufacturing business, Abengoa has commissioned to construct over **1,500 t of metallic tower structures** to reinstate the supply of electricity in Baja California in the wake of Hurricane Odile.

Costa Rica

Abengoa is currently working on **three electrical substations** and associated lines in the Central American country, which will help to improve the nation's existing energy infrastructure.

Colombia

Abengoa has secured its **first contract in Colombia** to engineer, design, construct and commission the compression and air drying system at the Cartagena de Indias plant of Ecopetrol.

Brazil

Abengoa is **one of the leaders in the development of large-scale transmission systems** in Brazil, where it has been operating for 15 years, with more than 13,000 km of lines either built or under contract.

The company is currently constructing a further **ten transmission lines to provide more than 7,200 km**, all in different stages of development. In order to construct the new lines, Abengoa will need to hire more than 10,000 workers at peak times. To maximize efficiency and help develop the country, the company intends to take the same approach as that taken in Peru, by training 2,500 Brazilians as line technicians. In addition to learning a valuable skill, they will also be hired over the duration of these projects.

Abengoa intends to train 2,500 young Brazilians as transmission line technicians

The company also constructs custom-made buildings in Brazil, where it is responsible for the construction and 20-year operation of the 30,000 m^2 **Manaus Hospital**, at which the first wing has already been opened.

Peru

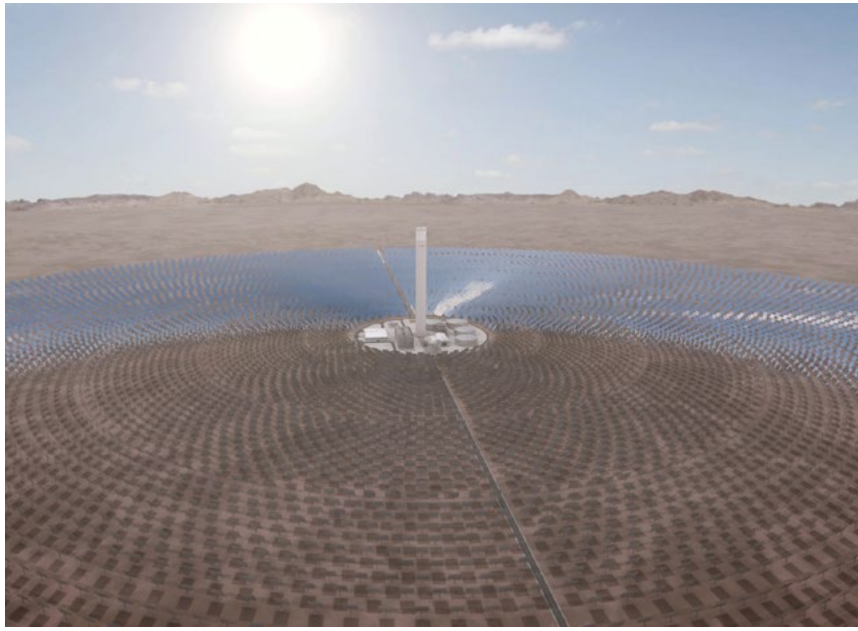
After 20 years in Peru, Abengoa has cemented its position as a leading company in the water, energy and power transmission and distribution sectors, **having constructed upwards of 4,400 km** of power transmission lines, of which 236 km have been awarded in the last year.

The company has also secured the country's biggest ever mining **project to upgrade Minera Shougang**, boosting the mine's production capacity of iron ore concentrate by 10 Mt a year.

Abengoa has also secured a contract to construct a **20 MW hydro power plant**, which enough capacity to supply clean energy to over 10,000 homes while helping cut yearly CO_2 emissions by 43,000 t.

Chile

Abengoa is developing **Latin America's first solar thermal plant to be used for direct electricity generation**. Located in the Atacama Desert, which receives the highest amount of solar radiation anywhere on earth, the facility combines a 110 MW power tower plant with a 100 MW photovoltaic plant. The power tower plant features up to 17.5 hours of thermal heat storage based on molten salts, a pioneering storage system designed and developed by Abengoa that will enable the company to optimize production of solar energy while offering cost-competitive around-the-clock generation.



Abengoa is constructing Latin America's first plant capable of direct generation of electricity and has chosen Chile as the host country

In the rail sector, key projects include the award of the **electrical system for the two new metro lines in Santiago de Chile**, while in the water sector, the company has been selected to develop the country's **first desalination plant** and has finished construction of a **140 km aqueduct**. It has also been involved in various power transmission and distribution projects and electro-mechanical assembly work for the main mines operating in the country, including the **five new contracts secured at the end of the year**, a transmission line spanning 87 kilometers and upgrades to four substations.

Argentina

Argentina was **where Abengoa first landed in South America** 46 years ago. Since then the company has worked on projects in numerous different sectors, highlights being the development of large-scale transmission systems, in which it continues to be one of the country's key players.

To provide a prime example, Abengoa was recently awarded **a contract to construct 176 km of transmission lines at 132 kV**, with the work to include the construction of a new transformer station and upgrades to various existing stations. The project will unfold in the province of Buenos Aires and falls within the Federal Electrical Transmission Plan of the country's Federal Board of Electrical Energy (Consejo Federal de Energía Eléctrica), for which Abengoa is currently working on another two projects in the provinces of Misiones and Santa Fe, for a further 195 km between them.

Moreover, the company closed out the year by securing **two new power transmission projects** involving the construction of 28 km of line, 40 km of fiber optic cabling, upgrades to two transformer stations and construction of a new transformer station.

Uruguay

Abengoa is the **largest construction firm in Uruguay**, where it has been operating for the last 35 years and where it has earned its leading status by successfully completing a wide range of different projects. In 2014 the company won the Ibero-American Quality Award, making it the only company to receive this accolade on three different occasions. It was also awarded the **Excellent Track Record Award**, the highest distinction in Latin America for quality excellence.

In the last year the company was awarded a contract to construct the new **convention center** at Punta del Este and a correctional institution at Montevideo, marking the country's first ever **public-private partnership** (PPP).

It has completed construction of the bridge over the Santa Lucía River and successfully upgraded the Sanatorio Americano healthcare center and the Paysandú cement factory for the state-owned company Administración Nacional de Combustibles, Alcohol y Portland.

Abengoa has cemented its position as **the leading private constructor and operator of wind power in Uruguay**, with three wind farms for the state-owned electric utility, one in operation and one under construction for a combined total of 170 MW. The three together will supply renewable energy to over 200,000 homes, cutting yearly CO_2 emissions by over 300,000 t.

The company has unveiled a number of other projects in the country, such as the construction of the **70 ML bioethanol plant** in Paysandú for the state-owned company Alcoholes de Uruguay, and a cement plant.

Europe

Spain

Abengoa started out in Spain over 70 years ago. Since then, it has been an active participant in the drive to develop the country's electrical, rail, grid and civil infrastructure.

The company is involved in **all manner of different projects** for a loyal and diversified portfolio of clients, ranging from rail network and transmission line maintenance to construction and remodeling of buildings.

Highlights for 2014 include the **two contracts signed with Adif, the state-owned railway administrator in Spain**. Abengoa will be responsible for installing and maintaining the protection, safety and fixed telecommunications systems for a 51 km section of railroad between the provinces of León and Asturias. The company is also to supply and install an overhead contact line and associated systems for a 65 km stretch of the new high-speed Madrid-Murcia line.

France

Abengoa has a **long-term contract in effect with the French public companies responsible for the electrical power transmission and rail transport systems**, carrying out a variety of different tasks relating to transmission lines, catenary systems and electrification.

United Kingdom

Last year saw Abengoa secure two hugely important projects in the rail sector. One of these is the **electrification of 250 km of rail in the south of England**. Abengoa possesses some of the sector's most advanced machinery and equipment and is an international benchmark in developing turnkey projects for catenary systems, traction substations, communications and auxiliary installations.

Belgium

Abengoa is set to commence work in Ghent on **the new construction world's largest commercial biomass plant**, which will be capable of generating 215 MW of electrical power from biomass.

Denmark

Abengoa secured its **first project** in Denmark: the mechanical installations of the future Niels Bohr building at the University of Copenhagen. Abengoa will also be responsible for maintaining the electrical and mechanical installations for two years.

Poland

Construction work is under way on **Poland's largest combined cycle plant** at 450 MW. The facility is located at Stalowa Wola, 200 km south-east of Warsaw. It will supply electricity, heating and hot water to approximately 10,000 homes.

Ukraine

Abengoa is constructing a **758 kV transmission line spanning 187 km**, as part of the plan to develop and improve the country's power grid infrastructure. The project is being financed by the European Bank for Reconstruction and Development (EBRD).

Africa

Morocco

Having arrived 37 years ago, Abengoa has since consolidated its position in the country. It is one of the **main constructors of transmission lines** in Morocco, with over 800 km, plus a further 300 km awarded in 2014.

Abengoa has been awarded a new contract in 2014 to install 300 km of transmission lines in Morocco

The company has been chosen to construct **Morocco's largest desalination facility**, which will supply 100,000 m³/day of drinking water to the local population of Agadir, thus helping to overcome the water supply problems in one of the world's most drought-ridden regions.

Abengoa is also involved in other projects, such as the remodeling of the control rooms at Agadir´s airport, the electrification and instrumentation of a phosphate plant and mobile telephony and fiber optic work for the country's main telecoms operators.

Algeria

Construction continues on a **new desalination plant featuring reverse osmosis technology** at Tenes, with capacity to desalinate 200,000 m³ of water a day, enough to supply a population of 800,000. Abengoa will also operate the plant for a 25-year term.

With the Tenes facility now completed, Abengoa has constructed a total of three water treatment plants in Algeria, where it treats a total of 500,000 m³ of water every day to supply the local population.

With the new desalination plant at Tenes now completed, Abengoa has reached a total desalination capacity of 500,000 m³ of water a day in Algeria

Ghana

The company is working on its first project in Ghana; a **reverse osmosis desalination plant** capable of producing 60,000 m³ of water a day and which will become the first desalination plant in West Africa.

Kenya

Abengoa is constructing a **132 km transmission line and a substation** in the country. The project is being financed by the African Development Bank.

Angola

The company has completed the Xangongo **water treatment plant**, which is able to generate 16.300 m³/day of treated water from the Cunene River.

South Africa

Abengoa is **one of the leading developers of solar power plants in South Africa**, where it has three impressive facilities for a combined total of **250 MW** of installed capacity: KaXu Solar One, a 100 MW parabolic trough plant with three hours of thermal storage, which is already online; Khi Solar One, one of the world's largest power tower plants, with 50 MW of installed capacity and two hours of thermal storage; and the 100 MW Xina Solar One, with five hours of thermal storage and which, alongside KaXu, is set to make up Africa's largest solar energy complex.

Khi Solar One, in South Africa, is one of the world's largest power tower plants

Asia

Turkey

Abengoa has been entrusted with the development of a **250 km smart grid** for managing water in Turkey. The structure will allow drinking water to be delivered to, and wastewater collected from, the city of Denizli.

Israel

Abengoa is developing the **country's largest solar thermal plant**, utilizing parabolic trough technology and with 110 MW of installed capacity. It is also building a conventional power plant with 220 MW of installed capacity.

Kuwait

Abengoa is involved in **power transmission projects spanning more than 120 km** as part of the plan to upgrade the country's existing energy infrastructures.

Saudi Arabia

Work is continuing on the **high-speed Medina-Mecca railway line**, a contract awarded to the Al Shoula Group, a Spanish-Saudi consortium comprising Abengoa and a number of other partners. The contract embraces the construction, assembly and integral maintenance of the 450 km line for 12 years. The line will transport up to 166,000 passengers a day and trains will reach speeds of up to 320 kph.

The main challenges posed by the project are the extreme temperatures swings, sand storms, dunes, and the different altitudes the route presents.

Abengoa has been chosen to construct the world's first solar-powered desalination plant. The facility will be capable of desalinating 60,000 m³/day of water and will supply 200,000 people. It is certainly a groundbreaking project in that a photovoltaic solar power plant will generate sufficient energy to power the reverse osmosis desalination process.

Abengoa is involved in the construction of the first high-speed railway line to cross the desert

Oman

Construction continues on the **reverse osmosis desalination plant** to supply drinking water to 225,000 local inhabitants of Barka, in north-west Oman. Abengoa was tasked with the design and engineering of the plant and also its operation and maintenance.

The company has also secured its **first power transmission contract** in the country, for the construction of a substation and the associated 25 km transmission line to upgrade and expand the national power grid in Oman.

India

Abengoa secured its **first concession of a power transmission project** in India and is to engineer, design, construct, operate and maintain two lines covering 134 km. It has also been awarded a further contract for 140 km of transmission line, which can be added to the 1,368 km of high and very high voltage lines the company has already installed in India and Nepal.

Sri Lanka

Work is ongoing on a **water treatment plant** capable of treating 13,000 m^3 a day. The project also includes the construction of systems to capture river water from the Kalu Ganga, a 2,500 m^3 storage tank and close to 20 km of piping to distribute the water treated at the plant.

Abengoa is also involved in energy-related projects to consolidate its position in strategic markets such as **China, Japan and Australia**.

Engineering

Abengoa's engineering division **provides efficient and innovative engineering solutions for the energy, water and environmental sectors**. It has well-established offices and facilities in Spain, the United States, Mexico, India, Chile and Poland, and a wealth of experience in international projects.

Thanks to Abengoa's presence and experience, its engineering division has acquired first-hand knowledge of the local markets and is quickly able to roll out new projects in any region. Upwards of 600 people provide up to 900,000 man-hours of work per year.

Abengoa is **the undisputed world leader in solar thermal engineering work.** No other company can match its achievements in terms of the number of plants designed or in the MW of power generated.

Abengoa's engineering division has proven expertise and experience in:

- Power plants: solar thermal and photovoltaic plants, wind farms, combined cycle plants and cogeneration plants, etc.
- Hydro infrastructure: water desalination, treatment and reuse plants and transportation and distribution grids and networks.
- Large-scale power transmission systems: electrical lines and substations.
- Industrial plants: biofuel plants, steel dust recycling, sulfuric acid recovery, etc.
- Metal structures: transmission towers and solar power plants, among others.
- Electrical and electronic systems: medium and low voltage switchgear, modular electrical rooms, etc.
- Telecommunications: fiber to the home networks to provide voice, data and video services to end users.

Abengoa's engineering division strives to provide across-the-board engineering solutions to its clients. To this end, it offers a complete suite of solutions: consulting, layout, calculation and design, conceptual engineering, preliminary engineering, detailed engineering or design, control and oversight of the work and uploading of designs to systems.

It has specialized personnel covering all the different fields of engineering, such as electrical engineering, mechanical and process engineering, civil and structural engineering, instrumentation and control engineering, piping engineering and telecommunications engineering. To reach the levels of quality demanded of it, Abengoa uses only the most cutting-edge calculation and design equipment available on the market.

Auxiliary manufacture

Metal structures

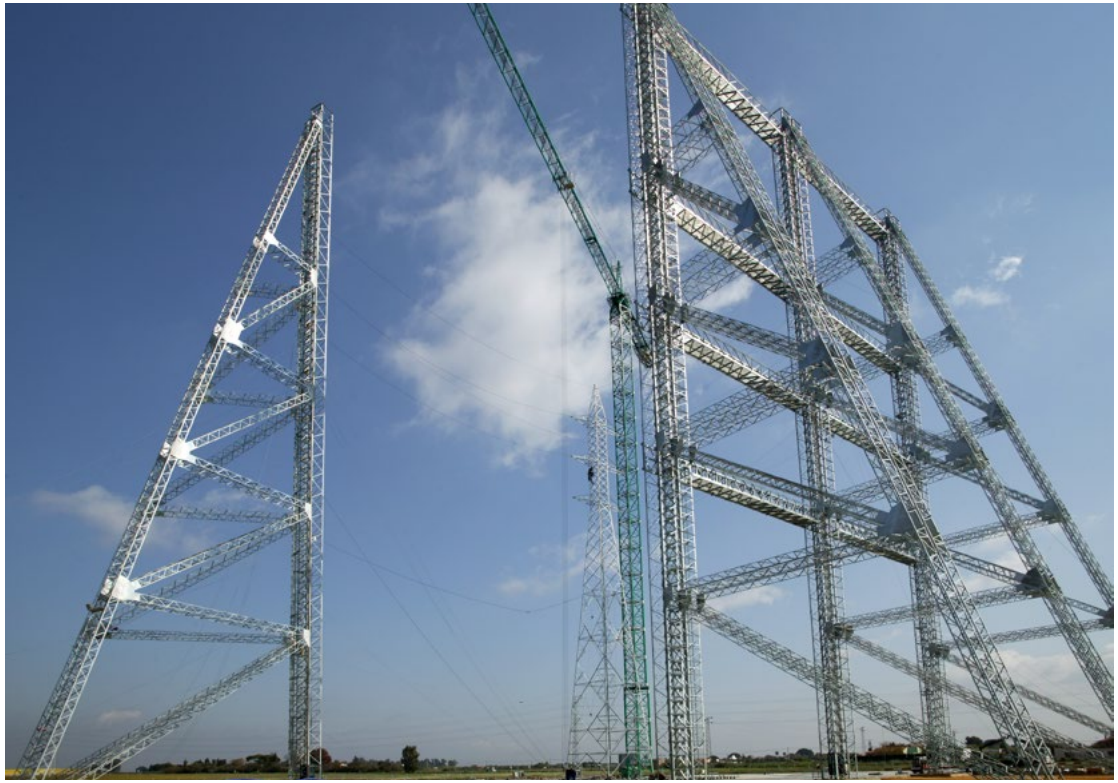
Abengoa has **more than 40 years experience** in designing and manufacturing metal structures made from galvanized steel. Its 900-plus operators and 140,000 m^2 of facilities are spread among **three strategically positioned plants** in Seville (Spain), Querétaro (Mexico) and Vodadora (India), enabling the division to offer its services anywhere on earth.

New production center for metal structures in India

Abengoa produces upwards of **150,000 t of steel a year**, which is put to different uses:

- Power transmission towers
- Structures for substations
- Telecommunications towers
- Support structures for solar thermal and photovoltaic plants
- Wind turbines

Abengoa also has a **testing facility** in Seville, where it conducts stress tests on its own and third-party metal structures by applying simultaneous stress loads in three different directions. The facility can accommodate towers of up to 72 m in height.



Abengoa conducts testing on towers of up to 72 m in height at Utrera (Seville)

The company has rolled out projects in the United States, Spain, India, Kenya, South Africa, Chile, Israel and Mexico, a country in which we lead the sector. In addition to supporting its own projects, Abengoa supplies structures to third-party clients.

Capital assets

Abengoa **has more than 60 years of experience in supplying** capital assets for the auxiliary electric power industry and over 40 years for the auxiliary electronics industry. It has **three production centers** located in key positions in Seville and Alcalá de Henares (Spain) and in Tianjin (China), providing a combined production surface area of 25,000 m^2 and a total of 350 employees.

Abengoa has developed a modular piece of equipment for a wind farm located in the East China Seal

Abengoa carries out the mechanical and electrical design, manufacture, wiring, welding and assembly of PCBs and conducts electrical and functional testing on:

- Low voltage motor control centers and power and distribution boards and medium voltage cabinets
- Measurement, control and protection boards
- Electrical rooms and modular equipment
- Equipment with integrated electronics
- Inspection and sampling systems and equipment classified for use in the nuclear and defense sectors

The capital assets that leave Abengoa's production centers are put to different uses, including rail transport, on-shore wind power and simulators for plant control rooms.

Abengoa is strategically positioned along the entire solar technology value chain, meaning it can develop, manufacture and supply all the non-conventional main components needed for a solar thermal power plant

Solar business - components

One of Abengoa's most significant milestones in 2014 was reaching **vertical integration in solar thermal projects**. The company is now fully capable of **developing, manufacturing and supplying all the main non-conventional components** of a solar thermal plant. This achievement means Abengoa is no longer dependent on third parties. This lowers supply risk while allowing the company to offer the most competitive product features on the market.

Moreover, to ensure the most competitive prices and reduce transportation costs from an economical and environmental standpoint, Abengoa is fully able to set up factories to produce solar components in the regions where the project in question is being carried out, thus improving the local economy, creating jobs and providing a significant social service. Examples here would be the mirrors factory set up in South Africa, or the one under construction in Chile for the supply of mirror facets for the facility under construction in the Atacama Desert. This factory will provide more than 350,000 facets over the entire construction and operation of the plant.

Global resources and local presence. These are the hallmarks the company aims for in each of its projects. This means that Abengoa is able to reduce costs through a global supply chain and by diversifying its know-how and being a local supplier. This makes its projects hugely competitive and generates trust and confidence in its clients.

Abengoa has continued to strengthen its position during 2014 across the entire value chain in solar thermal technology, investing heavily to make its technology increasingly competitive and striving to reach and act in each region true to its commitment.

Abengoa has built up a wealth of knowledge in plant operation and maintenance, enabling it to make design and construction improvements to its plants and operating methods

› The Mojave example

After a rich and rewarding three-year experience, 2014 saw the company unveil the **world's second largest STE** (solar thermal electricity) **plant featuring parabolic trough technology**, second only to Abengoa's own Solana plant in the state of Arizona, which has been in operation since October 2013. Mojave will feed the power grids of California from Harper Dry Lake, with an installed capacity of 280 MW, enough to provide clean energy to roughly 54,000 households. The site, covering 714 hectares, contains a total of 1,128 new generation parabolic troughs made up of no less than 315,840 parabolic mirrors. The new dimensions and properties of the troughs and mirrors ensure improved performance in terms of net power generated and a longer useful life. Thanks to its vertical integration of its business model Abengoa enjoys significant control over the key components that comprise the Mojave solar power plant, supplying the mirrors for the parabolic troughs and the metal structures of the troughs. This control and monitoring also extends to operation and maintenance work, with products including the hydro-cleaning trucks to keep the mirror surfaces free of dust, and the portable Condor device to measure and track the reflectivity of the mirrors operating in the solar field. This enables Abengoa to meet its annual power generation commitments with the client.

The new dimensions and properties of the parabolic troughs and mirrors at Mojave boost performance in terms of net power generated while extending their useful life