

## Safe and clean renewable energy

Wind is one of the most antique sources of renewable energy used by human and it is based on the direct transformation of wind into electricity through wind turbines. Thanks to its versatility, wind energy is a key piece in hybrid energy systems: integration of several types of energy generation such as photovoltaic panels, electrical energy generators, battery energy storage systems (BESS) and renewable energy sources. These systems are used specially to supply electricity to remote areas, contributing to the sustainability of the planet, featuring improved operating performance, cost reduction and improved reliability.

Abengoa has been participating for more than **35 years** in projects related to the wind energy sector, accumulating experience in more than **480 MW worldwide**. Since the construction of its first wind farm in Spain (Tahivilla), finalized in 1998, the company has offered services for the entire life cycle of the project, from the study of the resource, optimization and selection of turbines, to detailed engineering, logistics, construction and operation of the wind farm.

Abengoa has developed wind projects all over the world, mainly as **turnkey-contractor**, what includes basic and specific engineering, wind turbines supply, electrical installations (low, medium or high voltage), civil works, wind turbine assembly and commissioning.

The company has also achieved a deep knowledge of the sector and has been involved in several areas such as **promotion, design, engineering, research and development, construction, operation and maintenance**. All this has resulted in a wide experience and know-how of this sector, something that makes Abengoa able to apply different wind technologies according to each project requirements:

### According to the axis:

- Horizontal axis wind turbine (HAWT).
- Vertical axis wind turbine (VAWT).

### According to the geared system:

- Conventional drive.
- Hybrid drive.
- Direct drive.

Abengoa has completed important wind projects. One of them is **Campo Palomas wind farm**, in Salto Department (Uruguay), with **70 MW** of installed capacity. The project covers more than 1,200 hectares and includes 35 wind turbines of 2 MW of unit power. The plant generates enough wind power to supply more than 26,000 households in Uruguay, preventing the emission into the atmosphere of around 137,000 tons of CO<sub>2</sub>/year.

Abengoa has also developed at **Peralta and Talas de Maciel** (Uruguay) other important wind projects, with **50 MW** of installed capacity each. They cover more than 2,400 hectares and include 25 wind turbines of 2 MW of unit power each. These two plants generate together enough wind power to supply 35,500 households in Uruguay, preventing the emission of more than 230,000 tons of CO<sub>2</sub>/year into the atmosphere.

In these projects, Abengoa has carried out the promotion, leading the design, the evaluation of the wind resource and the electrical energy generated, as well as the optimization of the layout that has allowed to identify excellent sites for these wind farms.

**Abengoa** is an international company that applies innovative technology solutions for sustainability in the **infrastructure, energy and water** sectors. It has over 75 years of experience in **engineering** and **construction**, being specialist in the execution of complex "turnkey" projects or engineering, supply and construction projects.

The company has extensive experience in the **power generation** sector thanks to the development of **open and combined cycle and cogeneration technologies, wind farms, and solar thermal, photovoltaic, waste to energy and biomass power plants**.

Abengoa is a world leader in solar thermal technology and an international reference in the construction of conventional and renewable energy generation plants. This experience provides the company with a **high capacity of design and hybridization** among power generation technologies, that allow it to offer the optimal solution to its clients.

More than  
480 MW wind  
plants built

35 years of  
experience with  
projects around  
the world



[www.abengoa.com/energy](http://www.abengoa.com/energy)

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Wind Energy

## Main References

Wind Project	MW	Country	Role
Tres Mesas	148.5	Mexico	BOP contractor
Campo Palomas	70	Uruguay	Development and BOP contractor
Talas de Maciel II	50	Uruguay	Development, EPC contractor and O&M
Peralta I	50	Uruguay	Development, EPC contractor and O&M
Tahivilla	30	Spain	Development, EPC contractor and O&M
São Cristovão	26	Brazil	Development
São Jorge	24	Brazil	Development
Zas	24	Spain	Development, EPC contractor and O&M
Juan Grande	20,1	Spain	Development, EPC contractor and O&M
Corme	18,3	Spain	Development, EPC contractor and O&M
Santo António de Pádua	14	Brazil	Development
Buenvista	7,8	Spain	Development, EPC contractor and O&M

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Innovative technology solutions for  
**sustainability**