

Optimising energy consumption, maximising generating efficiency

PES speaks with Jesús Mayor, Ingeteam Wind Managing Director, for an insight in to the importance of the wind industry, synergy and their think globally act locally philosophy...

PES: Welcome to PES Wind magazine. Thanks for talking with us. Would you like to begin by explaining a little about the background of your organization and how you currently serve the wind industry?

Jesús Mayor: The Ingeteam Group is a market leader specializing in the development of electrical equipment, motors, generators, frequency converters, electrical engineering and generation plants. With more than 60 years of experience in the electrical sector, we currently have over 3,000 professionals, of which over 32% are dedicated to project engineering and development. Ingeteam is committed to investing in technology and innovation as the drivers of future growth. 11% of our personnel are dedicated to R&D and each year we invest more than 7% of our turnover in this activity.

Within the wind power sector, Ingeteam is an independent supplier of power converters, generators, turbine controllers, Condition Monitoring Systems (CMS), SCADA management systems and O&M services for wind turbines up to 10 MW for

onshore and offshore applications. The company has an extensive product range and experience acquired through multiple business sectors.

Since 1995 and up to the end of 2015, Ingeteam has commissioned 21,522 wind power converters, accounting for 30 GW of installed wind power capacity worldwide and a 7% market share. Our global footprint includes manufacturing facilities in Europe, North and South America, and sales and service centers strategically located all over the world.

PES: You are active in a number of industry sectors. How important is the wind business to Ingeteam?

JM: The Ingeteam Group primarily serves four key sectors: industry, marine, rail traction and energy.

Ingeteam's activity in the industry sector covers the design and construction of new steel production plants and the revamping of existing plants to extend their useful life, or increase the plant's production capacity.

In the marine sector, Ingeteam has been providing solutions for the past 16 years.



Jesús Mayor, Ingeteam Wind Managing Director



Ingeteam, together with its Indar and Pine brands, participate in a wide variety of projects, relating mainly to vessels with very specific characteristics: offshore Multi-Purpose Platform Support Vessels or oceanographic vessels. The fact that several Ingeteam business units take part in these projects shows how effective the group's synergy is in this sector.

Ingeteam Traction provides energy efficiency solutions for railway traction systems and energy recovery systems.

Since 1990, the Energy business unit of Ingeteam has been dedicated to supplying equipment for the renewable energies sector: wind power, photovoltaic, solar thermal, hydropower, biomass and biofuels. Within the Ingeteam Group, the wind business makes up an important part of the turnover figures, more than 40%.

PES: Ingeteam has been serving the wind industry for several years. What major technological developments have there been in Ingeteam products?

JM: Yes, indeed. Just last year we celebrated our 20th anniversary, an important company milestone marking two decades of growth and success in the global wind industry. Since the manufacture of our first power converter named INGECON® WIND in 1995, the company has enjoyed steady growth and managed to consistently stay ahead of the curve.

In the year 1995, benefitting from a favorable environment for renewable energy, Ingeteam started working on the development of variable-speed machines, which led to the successful installation of a first prototype of doubly-fed machine in the summer of 1996, a technology that was to become the golden standard in the wind industry to this date.

In 1997, the company started mass-production. Since then, Ingeteam has commissioned more than 20,000 wind power converters, as said earlier, accounting for 30 GW of installed wind power capacity worldwide and a 7% market share.

Nowadays, Ingeteam offers low and medium voltage power converters up to 10 MW for onshore and offshore applications, optimized for DFIG and FC topologies, full power converters specifically designed for each generator technology (PMG, IG, EESG) and air cooled, air/water cooled and full water cooled solutions for harsh environments. Our converters achieve industry-leading efficiency and reliability and comply with the strictest grid codes. In fact, the company's DFIG portfolio has always led the compliance of the most demanding grid connection standards, such as the German Grid Code (FGW), being able to comply with FRT requirements in all the product range up to 3.5MW for DFIG products. Thanks to this extensive product range and the experience

acquired in multiple industries, the company has positioned itself as the leading company in wind turbine electrical conversion equipment.

Similarly, at last year's EWEA Annual Event in Paris, DNV GL, the world's largest resource of independent energy experts and certification body, awarded a component certification to the company for our new frequency converter. The DFM 3000 Ingecon® Wind converter offers operational flexibility, energy management benefits and compliance with technical regulations. The Ingeteam converter can be integrated in on- and offshore wind turbines up to 3.5 MW. This was the first component certificate to be awarded by DNV GL according to its own globally applicable standard for electrical installations in wind turbines. It combines all the requirements of the previous GL and IEC guidelines in a compact, clear and concisely worded way. With this certification, we have confirmation that our frequency converter meets all applicable guidelines for on- and offshore use. This component certification makes it easier and quicker for wind turbine manufacturers to use the converter in their designs, since for this type of certificate they need only document the proper adaptation and integration of the component.

Ingeteam's technology and know-how has enabled the company to move the production of converters in the main wind

markets worldwide, constantly adapting to the necessities of the each market and complying with the local content requirements.

PES: Geographically speaking, where are the key markets for Ingeteam and are there any new emergent markets?

JM: There are wind turbines with Ingeteam's power converter technology in more than 30 countries around the world, but we can consider European countries and North American countries as the more traditional markets for Ingeteam. Over the last few years, Ingeteam has been consolidating its leadership position in two of the world's largest emerging wind energy markets, namely Brazil and India. Ingeteam has strategically targeted these two regions, which have become the company's core growth engines.

PES: What attracts these new emergent markets to Ingeteam?

JM: New emergent markets bring new challenges to the wind power business in

terms of new regulations, technical demands or local content requirements. These new challenges offer us the possibility to contribute with more added-value to our clients, offering innovative solutions to adapt to the new requirements in a fast and cost effective way. In this sense, Ingeteam follows the key principle 'Think globally, act locally' throughout the value chain of the company.

PES: Which aspect of the industry provides the most satisfaction for you right now?

JM: Ingeteam's main focus is and always has been the customer. We continuously look for ways to meet our customers' needs and expectations. Therefore, two key elements of our value proposition are flexibility and partnership. Our engineering teams will provide our customers with solutions to meet their project needs. We go out of our way to make sure our solutions are exactly what the customer wants. We are also partners; our engineers are in constant contact with our customers

and are at their service, providing them active support for each specific project throughout the entire product life cycle. By doing this, we know we can satisfy our customers' needs and contribute to their business success and that's what really provides us the most satisfaction.

On a more general level, it's also satisfying having been able to contribute from the very beginning of this market with innovation and technology to make wind energy more and more competitive comparing not only with other renewable energies, but with traditional ones. The share of renewables in the energy mix is growing year by year, being wind power the main and more stable engine.

PES: And conversely, what presents you with the biggest challenges?

JM: Basically, what gives us most satisfaction is also what presents our biggest challenge. But, we face the challenges as opportunities to improve and to contribute to making our customers more attractive in the market both technically and economically, so contributing also to make the wind power more efficient and competitive. Challenges are everywhere, taking into account that the power converter is the key component that defines some of the main electrical parameters of the wind turbine. Therefore, Ingeteam's power converters are in continuous evolution in order to offer better performance and features. Likewise, being able to serve different technologies adapted for to different countries is a key factor in our business.

PES: What are your thoughts about prospects for 2016 with regard to your organization, and the wind industry in general?

JM: 2015 was a very good year for the wind industry, and for Ingeteam. 2016 promises to be another strong year. We are convinced 2016 will be the year of the consolidation and of the growth of the wind business globally and Ingeteam will be there to contribute to this target with its innovation and technology.

For more information:
www.ingeteam.com



Ingeteam is a market leader specialising in the development of electrical equipment, motors, generators, frequency converters, electrical engineering and generation plants. The company primarily serves four key sectors: energy; industry; marine, and rail traction, seeking to optimise energy consumption whilst maximising generating efficiency.