INTERVIEW

Aloys Wobben, Chairman and Managing Director, Enercon

Since its beginnings, Enercon has installed more than 6 Gigawatts of wind turbines worldwide. The company is now the largest turbine manufacturer in Germany, with almost a third of the domestic market and a 14.6% share internationally. Its production area covers about 300,000 square metres, the same size as 30 football pitches. *Luisa Colasimone* met the founder and managing director, Aloys Wobben.

Enercon owes its bright present - and possibly its future - to the will and vision of Aloys Wobben, a graduate engineer who started construction of the first Enercon turbine in the backyard of his garden in 1985, after realising how much untapped wind potential lay hidden in the German region of East Frisia. Today the district of East Frisia/Papenburg benefits from nearly 55% electricity from wind power, and the first Enercon turbine is still working.

The first Enercon E112 turbine under construction in Germany

Photos: Enercon

In 1985, Enercon started production with 55 kW turbines with a gearbox and variable speed, the first professional machine with variable speed ever installed. “It was a very successful machine and we had a wonderful market, but it was clear for me that was not the future,” says Wobben. In 1992 the company switched to gearless turbines, more environmentally friendly as no oil was needed: “We introduced the E40 without gearbox and hydraulics. Then came the E30 and the E66 and now we have already installed three of the big 4.5 MW machines.”

“The E112 is very ready to go”

Enercon’s latest model is impressive – three house floors high and with a rotor diameter of 112 metres. It is designed to be used onshore as well as offshore, so noise levels are very low. The E112 is in fact less noisy than three of the smaller E66 model. The tips of the blades are tilted to reduce noise emissions and to increase the energy yield.

“The output of one E-112 is tremendous, 15 million kWh. We could reach the 25% electricity target in Germany with only 7,500 E112 units. So you realise 25% - a quarter of German demand, an industrialised country which uses a lot of electricity - only by installing 7,500 of these machines.

“In Germany we have some 13,200 villages with less than 20,000 inhabitants. If you drive along, every 10 kms you find a small village, and if you install in every fourth village two E112s, the electricity problem is sorted. So

you drive and every fourth village you see nicely twinned and running turbines, and you are reminded of renewable energy again. Germany is highly industrialised and needs huge amounts of electricity, but it can have 25% electricity from wind."

But Enercon is also working on much smaller turbines, such as a 100 kW machine. "We also need small machines, and the small machines are not so easy because they have to react in storms in the same way as big machines, but they have to be cheap. That is the reason why we are not totally ready yet, but the 100 kW generator is ready and other parts are in production."

"It's like the old Volkswagen. You go to the service station and you find all the spare parts"

A distinctive feature of Enercon is the maintenance service provided to customers. "It's very important. You cannot always introduce new models. In wind turbine manufacturing, often the designs are not integrated, a new machine is produced but then new spare parts are also required. We stick to our models; the maintenance has to be cheap and fast."

To secure the best availability, all Enercon turbines can generate more than 2,700 electronic status messages, with respective control measures. In 2003, the availability of all Enercon E-66 machines, for example, was 98.5%. "When a technician drives to the wind turbine, he knows already what he has to do. Enercon electronic experts receive every month a computer-generated report of the problems, and can identify the recurrent ones. That's why we have a high functioning score, and that gives also some kind of guarantee to the banks which finance these machines."

As to markets for the company's products, in the near future Enercon will focus more on exports. Enercon policy is to collect data on potential markets - for instance Estonia, Norway, Latvia - and determine which country is "safe" to invest in, and which banks are willing to finance installations for customers.

"Our main production and R&D centre is in Germany but we are also focusing on developing countries like India or Brazil, for example. In these countries we also have production lines for complete turbines and/or blades. I think it is important to support these countries via technology transfer. All of the world's people should have access to affordable, modern energy, and to the benefits this energy can provide, while protecting the environment and guaranteeing energy security."

"Renewable energy is not only for rich societies, it's also for developing countries."

Wobben's concerns are wide-ranging, and what fascinates about this man's personality is his ability to incorporate into his vision global needs and realities. One of his key issues is technology transfer to developing countries.

Until recently, one of the biggest barriers to getting technology transfer to the developing countries has been the question of financing. Today India has installed a bank specifically for financing renewable energies. Supported by the government, it is the third concrete sign of support by the Indian government for renewables, after establishing a ministry for the environment and one for renewables. "India makes its support to renewables very clear and I hope that the next Prime Minister is at least half as good as this one. While in Germany we're discussing over and over the electricity feed-in law, India is doing what so-called developed countries do not. In terms of technology and knowledge transfer, it doesn't only go from the industrialised world to the developing world. So we could also take some lessons from the developing countries back to here."

Enercon E66 working in a cornfield

Some of these financing mechanisms can be a model for other developing countries to adapt, Wobben believes. “The Indian government gave a clear sign to investors: renewable energy is what we want. While in Germany and Europe at large there is this eternal dance: renewable energy will pass, will not pass…

“India is a market where normally you make no fast profit, but at Enercon we want to develop a long-term investment strategy and we think that India is growing very fast. The new highway from the north to the south, for instance, was built in a very short time. Until now we have had a very good experience. For example a long time before we discussed the Green Card for India or for others, we had already established a cooperation with India. Indian engineers stayed here in Germany for three months, then went back with technical experience and continued to develop.”

A specific software was also developed in India to provide daily updates on Enercon turbines’ production to the Indian minister for renewable energy. Before deciding further financing for wind farms, he can thus evaluate personally the performance of the technology. “There is complete transparence. So the minister called our competitors and asked them to do the same. That resulted in a sort of race to increase the quality and performance.”

“There’s no other way to go than renewables.”

Wobben’s vision also encompasses the great issues of resources and pollution. “Our planet is already damaged. We have lost animal species, the state of the atmosphere is weak and we have to protect what is left. It should be immediately forbidden for everybody to increase emissions. Global warming is clearly a problem. Alaska used to be 80% permafrost and now it’s getting less. Canada was 60% and the former Russia 50%, but now they are melting away.

“Our resources such as coal, gas, oil and nuclear - uranium 245 - are limited. There’s no other way to go than renewables. And I believe that very strongly. Some politicians in Germany argue against renewables at the moment, but it is just a question of time: the wind will change and we have to be ready with effective renewable solutions.”

Currently, the average fossil power station is around 30 years old, he says. Many power stations will have to be shut down or replaced in the near future, not only in Germany but also in other countries, where power stations are sometimes even 50 years old. Plans are being prepared to define how the energy future

Enercon production line - as large as 30 football pitches

Photo: Enercon

will develop. The favourite option is often gas, as it's perceived as a "cheaper" energy source. However this will only reiterate dependence on a single energy source, which will also run out one day.

"Hydrogen? That's one of the 76 elements that we have."

The other big issue which Wobben expands on is renewable energy sources and electricity storage. In the US and in Europe, when it comes to discussing storage systems for electricity, the main word is hydrogen. "That's one of the 76 elements that we have. Hydrogen is a magic word; if you try to get funds for your research and it involves hydrogen, then doors are open, but people don't always know what hydrogen is. Of course you can use it as a storage system, but we should develop a storage policy rather than a hydrogen policy, which encompasses also other elements.

"I believe that we have made very strong advances in research and we should continue to approach this with open minds. In Europe, most countries are dominated by the electrons. But all 76 elements have electrons. We have to research what is the best way to store electricity electrons. I'm surprised to see that everybody is looking at hydrogen. I believe it needs to be supported as we have to find out about the storage system for sure, but it would be good also to look more widely. We are not saying we will never be involved with hydrogen, but our main business is in making strong wind turbines."

"The issue today is not only electricity production but the management of electricity."

"In Germany, we have centralised power stations but not centralised customers and then a distribution network. What can we do now in European countries? We need more decentralised energy in combination with storage systems. Therefore the existing energy mix has to be optimised with a higher proportion of renewable energies. The electricity consumption in local areas, for example, is going up and down. If there is a big demand for electricity it could be provided by the storage system. Today we don't have that, but we will have that in the future. Enercon wind turbines are ready to be connected to a storage system. You need the place, grid connections, contact with a main computer which produces the energy. Putting a container in each foundation is not so expensive. And that is a commercial solution.

"We have to do it for our customers. They trust us and say 'let's buy an Enercon, they're working on the future'. A turbine can do more than simply produce kilowatt hours. So what we try to do is to produce the turbines but also the accessories, and we'll do that step by step."

Blade being lifted into position at Enercon wind farm

Photo: Enercon