

# Vestas Commands the Skies

DITLEV ENGEL CHARTS GROWTH

BY MARTIN ROSENBERG



**V**ESTAS SITS ATOP THE FAST-GROWING GLOBAL wind power industry, with 33,500 wind turbines installed in 63 countries and a market share fast approaching one-third. Just one of its gleaming 3-megawatt wind towers can generate an equivalent amount of energy to that sloshing about in 13,000 barrels of sticky black oil – without producing carbon dioxide or financially strengthening terrorist-backing Mideast regimes. The math is stark. With oil prices hovering at close to \$100 a barrel, one of these mammoth wind generators is worth about \$1.3 million a year worth of oil. Vestas' strategists have put pencil to envelope and calculated that the world will need more than 925,000 megawatts of wind energy by 2020, to get to the point where 10 percent of the world's electricity will be wind generated. That represents a 20 percent annual growth rate for wind as far as the eye can see, and Vestas has healthy ambitions to capture a major share of that growth. Vestas expects to achieve revenues of about \$8.5 billion this year, up from \$6.7 billion in 2007. We

recently talked with Ditlev Engel, Vestas president and chief executive officer. Engel, born in 1964, has held executive positions in China, Norway and Denmark. His comments, edited for style, follow.

**ENERGYBIZ** Vestas had about 28 percent of the market share for wind turbines in the world in 2006. What about this year?

**ENGEL** We estimate that in 2008 it will be around 30, 32 percent.

**ENERGYBIZ** Your company would like to see 10 percent of the world's electricity produced by wind by 2020. That would require the installation of 900,000 megawatts of wind generation over the next 13 years. Is that overly ambitious?

**ENGEL** It's a 20 percent annual growth rate from now through 2020. If you look at how much the industry has grown historically, then that should be possible. But it's of

Ditlev Engel  
PHOTOS COURTESY OF VESTAS



course very dependent on the right regulatory framework. People must know what kind of investment commitment they have to make in order to move it up to this level.

**ENERGYBIZ** Do you think wind today is mature enough to be competitive with natural gas, coal and nuclear generation?

**ENGEL** Yes.

**ENERGYBIZ** But to accommodate significant wind generation, substantial transmission investments will be needed.

**ENGEL** But if we look at the grid capacity in general, in many places investments need to take place. Grids in general are exhausted.

**ENERGYBIZ** The 900,000 megawatts of new wind generation – how much of it will be in North America?

**ENGEL** The United States has fantastic wind resources in many places. Wind is still less than 1 percent of the American electricity consumption. In Denmark where we come from, we get up to 20 percent. So there's absolutely no reason why the U.S. couldn't go much higher.

**ENERGYBIZ** What must regulators do?

**ENGEL** In Europe, by 2020, 20 percent of all our energy – not just electricity – is to come from renewable sources. These are now binding goals. It will be very important to make similar goals in the U.S. and then it will definitely be done. We just announced that we are enlarging our blade manufacturing facilities that we are constructing in Colorado, and we also announced that we will build a tower factory in the U.S. this year. We really believe that the U.S. will move forward. But if we're going to get to the level of the 10 percent on a global scale, it will require long-term planning and a long-term energy plan.

**ENERGYBIZ** What about China and India? Do you think wind could make a significant dent in those countries?

**ENGEL** Over the last two years, we have built seven factories in China and we also announced we'll build another three because the Chinese have increased their renewable target to 15 percent by 2020. The Chinese market will grow very fast in the coming years.

**ENERGYBIZ** Many states in America have renewable portfolio standards. Should the states or the federal government set these rules?

**ENGEL** It's good to have both.

**ENERGYBIZ** Vestas and other foreign manufacturers play a big role in the global wind power industry. Why?

**ENGEL** Over the last 10 years, the U.S. production tax credit for wind generation has been extended repeatedly for brief periods. If you would have instead said in 1999, "Let's make a ten-year PTC," I can tell you we would already by now have seen many more industries being built and developed in the United States, including ourselves.

**ENERGYBIZ** Is it too late for the United States to catch up?



Vestas has installed 33,500 wind turbines around the world, including these units in southwest Wyoming.

**ENGEL** We live in a globalized world. Vestas is second or third largest right now in the American market. We have our main office in Portland, Ore. We are building new facilities in Colorado. And we are ready to invest substantially more in the U.S. But it does require that there is this long-term commitment.

**ENERGYBIZ** What share of current wind generation is offshore and how fast do you see that growing?

**ENGEL** Offshore is still a very small proportion. In 2006, the total installed capacity of wind in the world was 15,000 megawatts and offshore constituted just below 200. There are definitely areas where offshore makes a lot of sense. In Holland there is not a lot of space for putting up turbines so offshore is working well for them.

But the United States has fantastic wind resources onshore in so many parts of the country that there are a lot of untapped possibilities onshore. Offshore will grow, but the majority of wind generation sites will be onshore.

**ENERGYBIZ** Skeptics say that the intermittency of wind is a major problem. You cannot rely on it 24/7. How do you respond?

**ENGEL** They should come and see us in Denmark. In addition to a smart grid, you obviously have to have other sources of energy. This is not an either/or discussion.

**ENERGYBIZ** You're saying that the United States could produce 20 percent of its electricity from wind.

**ENGEL** No problem. It's just a question of planning and it's a question of grid. The United States has fantastic wind resources.

**ENERGYBIZ** Denmark aspires to get 50 percent of its electricity from wind. Is that an end-game scenario for the United States?

**ENGEL** You are in a country where you have to think big. But let's get to 20 percent first and then the next step.

**ENERGYBIZ** What about the American political atmosphere? How does it influence the development of wind and renewable energy?

**ENGEL** This is an issue which is very important for the country and therefore I come regularly to Washington to discuss with policymakers. I'm definitely seeing much more interest and understanding for these things going forward. One of the issues that people tend to forget is that wind does not consume water. In coming years water is going to be a very big topic. It does not produce carbon dioxide and you can ramp up a lot of capacity fast.

**ENERGYBIZ** Coal and nuclear generation require water?

**ENGEL** That's right.

**ENERGYBIZ** What do you think about the aesthetic argument against wind turbines?

**ENGEL** Ask people if they prefer to live next to a wind power plant or to a nuclear power plant. You have a lot of better areas than we have in Denmark for the installation of the turbines. You can put them up in a lot more remote areas, and if you have the right grid, it will not bother anybody.

**ENERGYBIZ** Are you optimistic that wind power is going to grow rapidly?

**ENGEL** Yes, we are optimistic. But we are also realistic in that we know that it's very important that business and politics go hand in hand in this development. Getting to 1 million megawatts is a big challenge. But there are no technological drawbacks. It requires careful planning so industries can ramp up and we can make sure that we deliver.

**ENERGYBIZ** Tell me a little bit about the corporate culture at Vestas. You started out as a farm implement company?

## Revenue

**2007: \$6.7 billion**

**2008: \$8.5 billion**

## Employees

**14,607 as of Sept. 30**

**18,000 by the end of 2008**

**ENGEL** That's right. We started out by making equipment for farmers more than 100 years ago. The company went bankrupt in the mid-'80s actually because of problems in the California wind market. Then 70 people bought out what was left of the old Vestas and restarted the wind turbine business. That is what is Vestas today.

**ENERGYBIZ** How many employees do you have?

**ENGEL** By the end of this year we expect to be 18,000.

**ENERGYBIZ** Describe your corporate culture?

**ENGEL** Vestas is a high-tech company with a tremendous passion for making clean energy. Remember that when we restarted the company in 1986 the price of oil was \$14 per barrel. Nobody talked about global warming. And a Vestas windmill produced 30 kilowatts per hour. They now make 3 megawatts per hour. So innovation and persistence have prevailed.

**ENERGYBIZ** Do you think there is going to be consolidation? Might Vestas be acquiring others or might others come after Vestas?

**ENGEL** I don't know. We are traded on the Copenhagen stock exchange. We have actually a lot of American owners or investors. As for merger and acquisitions, we will see new players coming into the market, specifically from Asia. We know that there are close to 30 companies in China today that are trying to get involved in this business.

**ENERGYBIZ** Why is Denmark playing a pioneering role?

**ENGEL** Because in the mid-'80s Denmark did not want to have nuclear power. We said we have to do something else and be innovative. That's how this was created.

**ENERGYBIZ** With oil prices at record highs, it looks smart.

**ENGEL** We in Denmark are happy that with an oil price of \$100 per barrel, we have a large amount of wind installed on our grid.

**ENERGYBIZ** What message do you have to senior management at American utilities?

**ENGEL** They should consider what is modern energy. A lot of people say we should support wind to fight global warming. But I think we should do this because this is a modern way of moving forward. We are looking for a new agenda for energy. It is not just a defensive move for trying to overcome global warming. When we started in 1986 we didn't know about global warming. But we had a passion for making a new type of energy and that's where we are today. ☺

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