

# Making the best of both worlds

*As the wind industry transforms itself from its books, beards and lentil soup background there are issues that need careful consideration. MegaCorp does not have all the answers*

By invitation

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The wind industry has grown from cottage scale to potential global significance in a period of 15 years. In 1990 the world had installed around 2 GW of wind plant; today we have approaching 50 GW. To put this in perspective, this is close to the total power generating capacity of Italy, a top-ten economic country with 60 million inhabitants. Germany, the third largest economy in the world, gets 4% of its electricity from wind. Not bad for an industry that is still regarded by some as being run by enthusiasts, for enthusiasts.

Those enthusiasts, the people who for years fought against disbelief and ridicule to get a toe-hold for the fledgling industry, now face new challenges. The industry has been "found" by big business, attracted by falling costs and a high growth segment. The old order, or rather disorder, of many innovative wind turbine manufacturers is changing fast. A few large players of immense financial and commercial muscle are emerging. Small, independent and gritty developers are finding utilities and multi-nationals throwing their weight around. While still fragmented, the wind industry is entering a period of consolidation and restructuring. MegaCorp is here.

Is this a good or a bad thing? The originators of the industry will argue that they cajoled and persuaded governments to give wind a chance—and that the new heavy brigades risk trampling on years of subtle progress. As independent, free-thinking people who created something out of nothing, they fear the dead hand of corporate risk-management. Creativity will be sacrificed on the altar of short term profit. Where were the corporate R&D budgets when they were needed most? It was talent and enthusiasm, not big bucks that tested and solved the real technical challenges: vertical axis versus horizontal axis; three blades versus two (one?) blades; pitch regulation versus stall regulation. When the fathers of the industry went from kilowatt to megawatt they did not have the safety net of a fat balance

sheet to help them sleep easy.

No, it was inspired and innovative people who grew the industry, not accountants. Small groups and co-operatives persuaded communities to support local wind developments. Ordinary people could invest modest sums and get a reasonable return while helping the environment. That sense of common purpose will

## ABOUT THE AUTHOR

Bruce Woodman is a founding owner of small British company, Pure Energy Professionals, with more than 15 years of investment management experience with blue-chip companies and investors in the international wind power business. He has worked closely with financial institutions and trade players on merger and acquisition strategy and is experienced in project evaluation, project finance, project development and wind farm operation

surely be destroyed by the insatiable appetite for unreasonable profit that inevitably comes with corporate clout. Obsessive demands for return on capital and dividends to far off anonymous shareholders will destroy goodwill towards the entire industry.

## TIME TO GET REAL

The new entrants, on the other hand, represent internationally successful businesses bringing precisely what the wind industry needs: capital, processes, quality standards, professional people, political clout. Costs will be driven down, reliability driven up. Warranties will be supported with sufficient cash and resources to provide comfort to the most nervous bank or investor. Utility-scale portfolios of operating plant will be run efficiently by skilled managers who know how to get the best out of any generation equipment.

Projects on a previously unimaginable scale will get built. Fresh challenges will get

tackled and overcome: large scale inter-connect construction; offshore projects; the first gigawatt wind farms. Finally, this tiny industry can be made material and capable of competing with traditional fuels. Only world class corporates can deliver what the industry needs now. Get out of the way. The A Team is here. MegaCorp means business.

There is a risk, however, of wind losing its distinctiveness, its singular attractiveness, if it simply becomes treated by its proponents as just another commodity. For sure, the new muscular entrants add to the credibility of wind, but the industry needs to retain some of the characteristics that have propelled its trajectory to date. Large utilities applying for construction permits, or grants, may not be so well received as home-grown heroes. Multinationals shipping equipment, and hence jobs, from ill-understood places will not grow a sense of mutual participation. In creating a better way of generating electricity, wind power has created a better sense of common purpose between consumers, politicians, and suppliers.

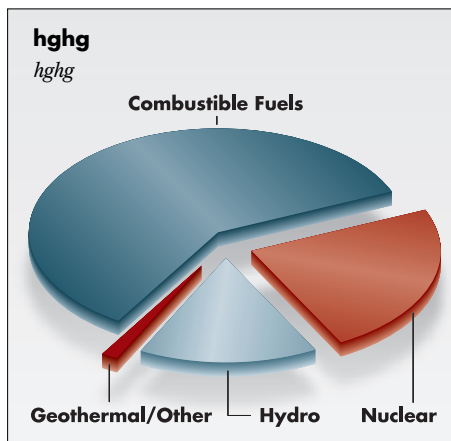
## A LONG WAY TO GO

That sense of purpose needs nurturing, not ignoring. There is a long way to go yet. Wind power has made a start and is established as a contender, but no more than that. The entire industry is still consigned to "Geothermal/Other" status by the International Energy Agency. We may think we have arrived, but the rest of the world is far from convinced. Politicians are unsure about which position to adopt. Professional investors are uncertain. The public does not know what to think.

These are real challenges for the collective wind industry, to be tackled with a single voice if it is to make the leap to being established and entrenched. The technical challenge has been met: wind turbines work and have proved they can work for a couple of decades. The cost challenge is heading the right way. They key challenge now is to get wind power understood well enough so that is given a chance to reach its true potential. Politicians, the public, and financiers need to see a stable and credible picture emerge. Their question is simple: "Wind power is here, but is it here to stay?"

Those of us in the industry, new and old, recognise the benefits of wind. There is a lot of it; it will not run out; it doesn't pollute; and the cost is low, and dropping. Pretty simple and convincing stuff. But it is not self evident to the rest of the world, which has yet to see a clear compelling case for change.

Why not? Because the thermal competitors are entrenched, robustly defending their interests and swirling a smoke screen around their weaknesses. New build coal plant is ex-



pensive and perhaps prohibitively so. That is a little known fact. Even less well known is the true state of nuclear's economics, other than it is too expensive for the private sector to invest in. Hydro sounds enticing, but in most countries it is now tapped to the point of exhaustion. Oil? Bad on emissions and worse on cost. Gas, then. Yes, that's the answer. Low cost and much lower emissions than coal. And the world is full of it. Well, parts of the world anyway. Actually, parts of the world that are remote from demand. Very remote. Politicians, the public and investors need acquainting with these truths.

## ENERGY CRUNCH

The reality is that the world is facing an energy crunch. Supplies are getting thin and expensive while everyone is using more electricity, not less. Incredibly, the debate on wind goes on as if in isolation from this real world. Some proponents promote it as being "the answer." In contrast its critics accuse it of "not being the answer." Well, just like coal, nuclear, hydro or gas it is neither: it is part of the answer. It should, however, be seen as the most attractive "new answer."

One reason that is not happening is because wind is all too often disparagingly tagged as needing government support, even subsidies, in order to compete. But that is as it should be. Wind competes in a market where subsidies are de-rigour, even for ancient technologies. Last year the European Environment Agency undertook a study of power subsidies in 2001. The single largest area of support, \$13 Billion, or 44%, went to coal, a source of electricity now over a hundred years old. Oil, gas and nuclear power got 38% between them. All the renewables received 18%. In the United States, the National Commission on Energy Policy last year published an estimate of subsidies to the US energy (not just power) industry for 2003. The overall lowest estimate was \$37 billion. The highest was \$63 billion.

So the long-established fuels carry mas-

sive baggage that seldom comes to light and even seems difficult to identify accurately. In contrast, wind power is new and thus completely transparent. It deserves and needs subsidies. But it has only seen a fraction of the state support made available to the power sector. So were the veteran wind lobbyists ineffective over the past 25 years? Or were they visionary in helping to shape government policies to deliver more than just money?

## MORE THAN JUST CASH

Wind has prospered most where government policies have enabled a wide participation in success. Where the benefits have been shared, the voting public has proved most positive towards adopting the industry. Denmark provided the first example, where grassroots involvement led to rapid adoption and ultimately a high penetration. Germany followed. Both countries got some wind turbines established early across wide areas, so everyone could see they worked and that they were a sensible part of daily life. Both countries now have a high proportion of families with investments in wind power and thriving wind industries.

Spain, too, has seen staggering growth. Again, that success has been widely shared. The regional nature of government, allied to the adoption of industrial wind power plans within each region, threw down a challenge to the industry in the mid 1990s: help us help our population and we will help you. In 1995 Spain had a little over 100 MW of wind power. The international wind industry was small, fragmented, short of cash and did not appear to be in any shape to deliver. By the turn of the century, Spain had nearly 3000 MW of wind plant. Today it has over 8000 MW, plans to hit 20 GW, an entrenched wind industry and huge employment across 14 regions. How on earth did that happen?

## TAKING RISKS

Inspired, creative and driven people made it happen. Risk takers, but informed ones. Danish and German companies, back then all privately owned, found Spanish partners, opened factories, sought local sub-suppliers, recruited people and got to work. The nascent Spanish manufacturers geared up and got stuck in. Small developers found ways of raising money, persuading local banks to lend 80% or more and using regional development agencies to

dedicate cash. Cautious utilities played hardball on connections, but then joined in. Local communities fought to host developments. The industry took root, grew and prospered. Now Spain is rightly proud of its wind industry, with the huge utilities taking full advantage of the technology to fuel Spain's increasing electricity demand. Wind power has not just gained public and political acceptance, it has stepped across the line to become self-evidently the right thing to do. Government, people, and business have all won.

## GETTING THERE

In Spain, and elsewhere, power from wind has had to be explained. Early, widespread dispersion of small numbers of turbines seemed to de-mystify it effectively. Some of the real and perceived downsides of wind—visual impact, intermittency, cost, sheer newness—have been managed superbly over the years by highly skilled developers. While some mistakes were made, they listened to local concerns, provided facts, improved layouts, communicated hard, and generally engaged with communities potentially affected by this new thing, wind power. They lobbied opinion formers, got alongside journalists, and persuaded politicians at regional and national level. Sub-stations were designed and built to blend into the local style. Cables were put underground to reduce visual clutter, even if it increased cost. At the same time, they managed to take project sizes from a few MW to over a hundred. This allowed them to benefit from economies of scale.

The approach also enabled Spain to create manufacturers with similar economies of scale. Costs have come down. It is a virtuous circle that has seen year-on-year decreases in the cost per MW and MWh for wind, allied to better reliability and stronger overall acceptance. The industry now comprises a rare blend of caution and innovation, sensitivity and risk taking, academic qualification and gut feel. It has a skill-base that cannot simply be imported from another industry. It has a lot to offer.

Couple that to MegaCorp's contribution to the other key economic element of wind: cost of money. This is largely a function of perceived risk and that in turn is a function of who is involved. Traditional, independent investors have tended to say: I need a high return to build that project, as it's too big, and hence too risky. But the new players look at the same

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thing and say: I can afford to build that project, as it's big enough. Additionally, lenders gain comfort from major utilities being sponsors and investors, while giant multi-national manufacturers can provide warranties that are acceptable to the most sensitive investor and lender.

### WHAT ABOUT THE MESSENGER?

These are strong messages that the still-young and partly formed wind industry needs to deliver coherently, consistently, and preferably loudly. With the old markets maturing, it needs to open up fresh markets and maintain growth in established ones. This requires winning and keeping the hearts and minds of large populations and diverse politicians. It's a big challenge, but one that simply must be won. So who will be leading the charge?

The big corporates will be fighting over market share to ensure they are material players, not just also-rans. The smaller manufacturers and developers will be fighting for their lives—and wondering how to raise money for growth. Public listing? More debt? Private equity? Sell some assets? Sell out to a bigger player? In this turbulent environment it will be very easy for the industry to collectively lose sight of the bigger imperatives. At the same time, the old technologies will be fighting to make a come-back: watch the price of shares in uranium companies. Not only that, but the newer renewables are shouting “me too” and deservedly getting a lot of attention. Better not take our eye off the ball, or we'll lose it.

It is difficult to see a natural messenger in the wind industry's current structure. The tal-

ent is there and the marketing budgets are getting bigger, but it's all in danger of being piecemeal and unfocused. Wind associations have been effective in several areas: political influence; provision of facts, not fiction; technical studies. But are they really set up and structured to win over world opinion in the face of

elsewhere. Or even turn back. It is time the industry recognised the challenge and invested in meeting it.

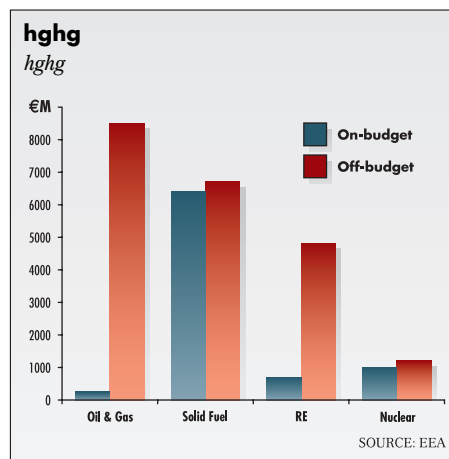
### A BIG STEP UP

Two centuries ago, Arthur Schopenhauer, a classic philosopher, produced a dictum that could have been written with wind power in mind:

“All truth passes through three stages: First, it is ridiculed; Second, it is violently opposed; and Third, it is accepted as self-evident.”

The originators of wind turbines endured the first stage alone, without financial support from large parent companies. They were ridiculed, but stuck at it and opened peoples' minds. The hard lessons they learned are essential for the continued well-being of the industry. We are seeing the big power debate shift ground, with suggestions of a new nuclear era in several key markets. Wind is still being violently opposed in should-be growth markets like the UK and France. It will probably get worse before it gets better.

Those of us in the industry see wind power as being “self-evident.” Most of the world does not, not yet. We must persuade. All the talents available need to be deployed: both old and new need to sing from the same hymn sheet. Whether or not the industry is adequately structured for the challenge is open to debate. Perhaps the pioneers and the new (big) bucks should get their heads together pretty soon and agree on what will work best.



the nuclear, coal and gas lobbies? Are the established associations providing the newly emerging markets with their support, experience and expertise on matters as vital as wind integration and transmission? Or are wheels being painfully re-invented and opportunities missed?

We are seeing rival wind associations competing with one another for attention and loudly disagreeing on policy fundamentals. When effort goes into fighting a rival, it doesn't go into opening new markets and growing existing ones. Politicians and decision makers are entitled to get confused, frustrated, and turn