



ABOUT WINDLAB SYSTEMS

HIGH ENERGY PRICES AND CONCERNS ABOUT GREENHOUSE GAS EMISSIONS ARE FUELLING INTEREST IN ALTERNATIVE ENERGY SOURCES, SUCH AS WIND FARMS. BUT THERE IS MORE TO WIND FARMING THAN PLACING A TURBINE ON A HILL. EACH FARM REPRESENTS HUNDREDS OF MILLIONS OF DOLLARS IN INVESTMENT AND MAY TAKE THE BEST PART OF A DECADE TO PAY FOR ITSELF.

> Windlab Systems helps companies make better decisions about the deployment of wind farm turbines. The company has developed a set of complex atmospheric computational models, which predict wind patterns across the landscape at resolutions of 100 metres. Windlab's computations maximise wind farm developers' returns by ensuring they make the best use of wind resources.

THE SCIENTIFIC METHOD

> Windlab's tools have two main applications. Its WindScape regional wind resource mapping tool determines the best location for a wind farm, using 'Virtual Towers' to estimate output. Windlab's Raptor fine-scale modelling tool is then used to help design the optimal configuration of the farm itself.

> Windlab's Chief Operating Officer, Dr Nathan Steggel, says the

computational models are similar to those used in weather forecasting, but are utilised retrospectively to determine weather history.

> "In a lot of cases it is really not that obvious how windy a place is," Steggel says. "Once you've actually found a site, you then have to measure the wind directly at that location. Then you use those measurements in combination with wind farm design tools to provide

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“EPICORP
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STEGGEL,
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energy yield assessments.”
> That process can take up to a year and requires modelling of each individual turbine site to determine optimal placement. This derives an energy yield prediction, one of the key inputs to the financial model used to estimate the return.

INNOVATION WITH PEDIGREE

> Windlab’s wind farm design tools cater for steep and complex terrain. Competing tools have been designed for primarily flat locations, and produce results that are up to 20% less accurate. This can translate to up to \$1 million per year in lost revenue. With each wind farm costing hundreds of millions of dollars to deploy, the benefits of more accurate predictions quickly become apparent.
> Windlab began life as a research project within the CSIRO’s Wind Energy Research Unit. Steggel and fellow researcher Dr Keith Ayotte (now Windlab’s Chief Technology Officer) had been involved in the creation of wind atlases for both New South Wales and Victoria. In May 2003, a spin-off company was created. Steggel believes that the complexity of his

company’s algorithms gives Windlab a significant lead on its competitors.

EXCEPTIONAL PARTNERSHIP

> CSIRO and Epicorp were initial investors in Windlab, but the company has also received funding from private investors and Queensland-based, inQbator. Windlab has been a tenant in the Epicorp Centre since its inception.
> “Epicorp have helped significantly with day to day activities, finding suitable accountancy and legal advice, and getting new staff on board,” Steggel says. “But most importantly, they have helped us secure new sources of funding. They are pretty well hooked up with the venture capital world and private equity market.”

GOING GLOBAL

> Steggel says the global wind energy market is growing at over 20% per year and believes this will continue for at least the next five years. The market for Windlab’s products and services is estimated to be worth \$9 billion by 2010.
> Windlab is also taking a leap

up the value chain to become a wind farm developer in its own right, having formed a partnership with Queensland’s Stanwell Corporation to build a large project in central Victoria. It has also signed a joint venture deal with the private investment bank Investec to find, secure and develop wind energy projects, valued at over \$500 million, in Australia, New Zealand and South Africa.
> Steggel says North and South America are Windlab’s next targets, with Asia on the longer term horizon. For now though his company’s immediate focus is on getting the Victorian project up and running.
> “Developing a wind farm is a lengthy process,” Steggel says. “It can take anything from two to five years from when you negotiate with landowners to getting the turbines in the ground.”
> The company is also considering moving into wind farm ownership, to become a wind energy producer.
> “Short term we are looking to replicate the joint venture business model in suitable global markets,” Steggel says. “The long-term strategic vision is that we become a globally diverse wind development company.”