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“Windflow Technology’s long-term goal is to manufacture and sell New Zealand made, internationally accredited Windflow 500 turbines to domestic and international customers.”

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Positive Growth Environment

The wind energy sector in New Zealand, and worldwide, is going from strength to strength and Windflow Technology is pulling all stops to ensure we are well positioned to take advantage of it.

The confidence in wind energy as a growing business is reflected by the actions of companies such as large lines company Vector Limited, who have taken a cornerstone 19.99% stake in NZ Windfarms’ recently announced \$75 million share offer, and other institutional investors who oversubscribed this same offer by 40%.

What this means for Windflow Technology is that finance is secure for the remaining 92 turbines in the Te Rere Hau wind farm. The ability of NZ Windfarms to raise finance has always been a pre-condition to them confirming batches of turbines for Te Rere Hau under our sale and purchase agreement with them and their joint venture partners, NP Power and Babcock & Brown. That pre-condition is now removed.

For our part, we are ready to fulfill our plans to produce at least 60 turbines per year. Production Manager Jules Ganley has been working with suppliers since he joined us last year to ensure they are prepared for upcoming orders, and has built up the Windflow Technology procurement and production team to ensure we will deliver turbines to Te Rere Hau on schedule. As part of this growth, we are preparing to move into new offices and assembly facilities in Christchurch where the production line will initially be capable of assembling five nacelles a month. Jules gives us an insight into these production developments on page 2.

Confidence in the Windflow 500 is also increasing as the Stage One Te Rere Hau turbines continue to spin, and as we move closer to gaining our international ‘IEC’ certification. Our Sales and Marketing team have been busy providing other wind farm developers with information on the Windflow 500 for potential projects in New Zealand and Australia. Due to increasing demand from the USA, and our signalled intention to install a demonstration 60 Hz model of the Windflow 500, we are also starting to raise our profile in the growing American market. We are exhibiting for the first time at the annual American Wind Energy Association (AWEA) event, Windpower 2007 in Los Angeles 3-6 June, where we will also present a poster paper on the Windflow 500’s unique and easy grid integration solution (see page 4).

We have always said that we will walk before we run, and the company has now warmed up enough to break into a jog and produce over 60 turbines per year. As always, we appreciate the encouragement and backing we have received over the years from our shareholders and suppliers and we look forward to being able to report to you on our continuing positive progress.

Geoff Henderson
CEO and Director

Production Planning – all in a days work

Jules Ganley Production Manager at Windflow Technology brings the necessary skills and experience to scale up production to meet the next batched delivery of 14 turbines, increasing to 60 turbines per annum in 2008.

As Production Manager Jules manages the supply of the Windflow 500 component parts and prioritises their integration into the overall supply chain logistics in order to achieve delivery agreements.

“Basically, Windflow Technology has been planning to scale up production from the moment the initial batch of 5 turbines were successfully commissioned. The order was always a sizeable one and in a professional sense we were always confident that we would coordinate the manufacture to deliver the volume of turbines in agreed batches. The fact that the funding is now in place to complete Te Rere Hau hasn’t altered our focus but it has meant that the delivery schedule is a reality,” says Jules.

“Our suppliers are among the top tier of engineering, hydraulic and electrical companies operating in New Zealand. We selected them on merit and track record; we have worked with many of them for several years. This scaling up as it is referred to is nothing new for companies at this level. Stringent quality assurance systems are a prerequisite for our suppliers and as part of strengthening their capability AH Gears Ltd and Wind Blades have recently achieved ISO9001 accreditation. Working through these quality assurance systems with our suppliers helps guarantee that the Windflow 500 component parts will be delivered to specification, on time, on site,” confirms Jules.

As an example Jules highlights that the initial business relationship between Windflow Technology and Wind Blades Ltd, was in part due to Wind Blades’ proven track record in delivering component parts used by the boat building industry. “We have now moved beyond that with the joint venture agreement and Wind Blades is committing their entire workforce to servicing our production needs. It has been a win-win on both sides and typical of the kind of relationship we wish to have with suppliers.” says Jules.



“The extra output means a change of scale not a change of fundamentals,”
- Jules Ganley.



“It was months ago that we projected and put in place the stages for Wind Blades Ltd to increase production and this led to the joint decision to identify and plan the move to larger premises (from 6-700 sq. m to 1,800 – 2,000 sq. m). We progressed this plan as part of a staged ramp up of production. We also wanted the longest lead time possible to maximize the chance of finding the commercial space that offered cost effectiveness,” says Jules.

Jules acknowledges that the thinking around scaling up production inevitably meant that Windflow Technology also had to address its own growth across human resources and physical facilities.

“From our perspective reviewing and projecting the impact of future demand is positive because it gives us the opportunity to redesign and implement a customized nacelle assembly line. Nacelle assembly is critical to the Windflow 500 and for this reason alone Windflow Technology will control this internally,” he says.

Order and delivery dates of the 97 turbines for Te Rere Hau were deliberately staged in four batches to allow Windflow Technology to manage production growth, and NZ Windfarms to secure its finances.

On a human resources level Windflow Technology has employed two new Windsmiths who will be involved on the nacelle assembly line right through to the onsite wind farm installation, commissioning and maintenance.

In general terms a lot of the planning work is managed through software that Windflow Technology has customised to meet advanced control and manufacture processes. “This is an ongoing process as we work with software consultants to optimize and fine-tune this aspect of supply chain management,” says Jules.

“The combination of commercial contracts, ISO accreditation, engineering and manufacturing track record, and customised facilities highlights the systematic and professional approach we have towards scaling up production of Windflow 500 turbines. This is an exciting time for Windflow Technology but it is also one that we have steadily worked towards for many, many, months,” states Jules.

Welcome New Employees

We welcome Mike, Garry and Peter to the Production team and Nathan to the Engineering team, where they will all be applying their skills to produce sixty turbines per year and have them installed and spinning on wind farms.

Mike Palmer – Procurement Officer

Mike is working with Production Manager Jules Ganley to ensure that quality components are ordered and delivered on schedule. Mike Palmer is from Canterbury and has worked for Scott Technology, a company who design and manufacture advanced automation systems, in Christchurch for ten years. During his time at Scotts he was responsible for purchasing, manufacturing and installation which included offshore work in America, Brazil and Mexico. Mike has recently returned to New Zealand after two years of adventures overseas in Europe and the UK.



Nathan Nicholl – Mechanical Engineer

Nathan is currently working on finalising design drawings for production and certification. Nathan recently returned to New Zealand after working as a performance engineer for ATI Technologies Ltd, a US manufacturer of 3D graphics and digital media silicon solutions, for the last three years. Prior to living in Silicon Valley, he worked at Skope Industries in Christchurch as a design engineer. Nathan graduated from the University of Canterbury with a B.E. in Mechanical Engineering.



Garry Dewar – Electrical Windsmith

Garry has been sub-contracted for maintenance work at the Te Rere Hau Windfarm in recent months, and now joins Windflow part time as an Electrical Windsmith. As part of this role he will initially be involved in nacelle assembly for the next production batch and responsible for maintaining the turbines once they are installed at Te Rere Hau. He has extensive experience as a line mechanic and electrician both in Australia and New Zealand and holds a full Electrical Registration. Garry lives with his wife and two children in Pahiatua.



Peter Howe – Mechanical Windsmith

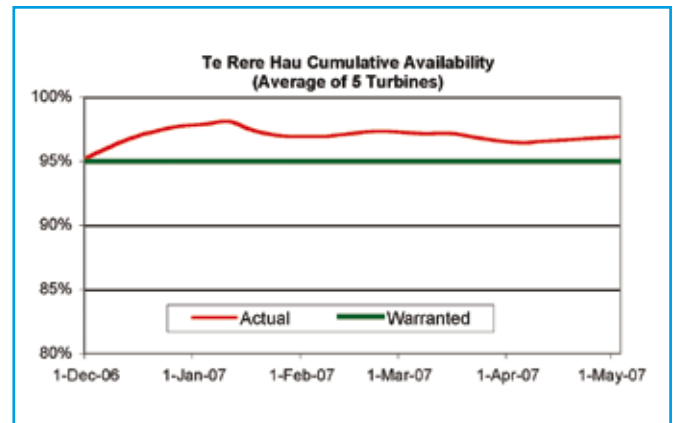
Peter has worked on maintenance at Te Rere Hau and will be joining Windflow part time as a Mechanical Windsmith, also assisting with the upcoming nacelle assembly and installation of the turbines at Te Rere Hau. Peter has experience in many mechanical fields, including fitting and turning, maintenance engineering and owning his own sawmill for many years. Peter also lives in rural Pahiatua.



Te Rere Hau Keeps On Spinning

The performance of the five Stage One Te Rere Hau turbines over the last six months has put the Windflow 500 firmly into the 'proven technology' category.

Availability of the turbines during April was a very pleasing 98.9%, which is comfortably above our warranted performance level of 95% (see figure below).



Stage Two Progress

The roads for Stage Two of the Te Rere Hau wind farm have been completed well before the winter months and a new pile foundation design is being tested as we go to print. We expect this foundation to be suitable for the Te Rere Hau site and add even greater cost-efficiencies to the project.

Blades and gearboxes for the next batch of fourteen turbines are starting to roll off the production line, and nacelle assembly is scheduled to get underway in September. Weather permitting, these turbines will be joining the other five up and spinning during the first summer months.

Events

American Wind Energy Association
Windpower 2007 Conference and Exhibition
June Los Angeles, California

Windpower 2007 is the largest wind energy conference and exhibition held annually in the world. It includes 3 days of conference sessions, and an interactive trade show of wind energy products and services. This year's conference theme is 'Growing the Wind Energy Business' and over 6000 delegates are registered.

For the first time Windflow Technology has a display booth at the conference and Geoff Henderson will be presenting a poster presentation entitled "Should The Wind Industry Switch To Synchronous Generation?" (see synopsis pg 4).

Easy Grid Integration

Windflow Technology is one of only two wind turbine manufacturers worldwide who have made the advantageous move to synchronous generators.

These can only be used in turbines which can control the torque from the rotor mechanically, requiring a different approach to gearbox design (e.g. Windflow Technology's patented Torque Limiting Gearbox).

Traditionally, wind turbines have used induction or asynchronous generators which have limited ability to meet grid code regulations without the use of complex and expensive power electronics or expensive and potentially unreliable add-ons such as large dynamic or static VAR compensators.

The electricity system globally has been designed around the use of synchronous generators directly on line, which are the standard generators used in hydro, coal, and other traditional electricity generation technologies.

Naturally grid codes have been designed around the capabilities of these synchronous, synchronised generators (SSGs). The grid codes require, for example, fault ride-through, voltage and frequency control, and reactive power capabilities. Figure 1 shows the USA requirements (maintain a power factor within the range of 0.95 leading to 0.95 lagging) and the NZ requirements (generator shall provide reactive power export of 50% or import of 33% of the continuous MW rating of the generator). Both of these requirements are easily within the capabilities of the SSG.

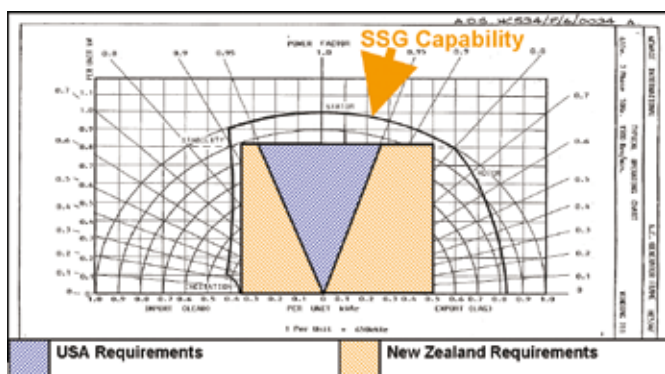


Figure 1: Power Factor Transmission Regulation Requirements Compared to the SSG Capability Curve (note x- and y-axes are to same scale)

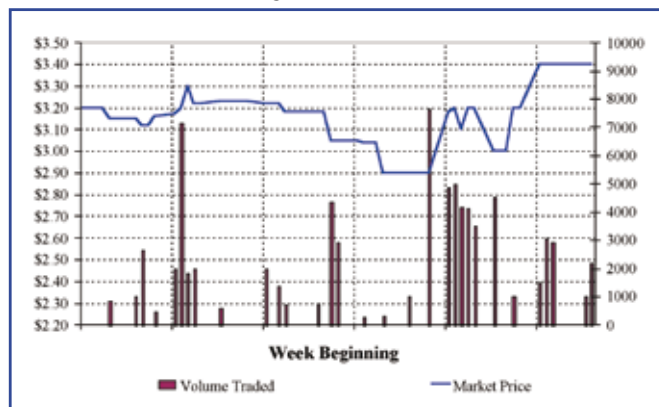
In summary the Windflow 500, through the unique combination of the Torque Limiting Gearbox and synchronous generator, is a good example of why the wind industry should switch to synchronous generation:

- Meets low voltage fault ride-through grid requirements
- Meets reactive power control grid requirements
- TLG/SSG combination offers a cost-effective and robust wind technology solution

This article is a synopsis of the poster presentation "Should the Wind Industry Switch to Synchronous Generation?" being displayed at the Windpower 2007 Conference and Exhibition, 3-6 June 2007, Los Angeles Convention Centre, CA, USA.

NZAX – Share Trading History

The line graph shows the market price while the columns show the volume of shares being traded.



To view this graph daily go to:
<http://www.nzx.com/nzxmarket/nzx>
and search for stock code WTL
(There is also a link on our website.)



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