



NZX and Media Statement

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## New Prototype Turbine Commissioned in Texas

Windflow Technology Ltd is pleased to announce the installation and first operation of the prototype 45-500 wind turbine at a site in Mitchell County, Texas USA. The turbine was installed to supply power for the Mitchell County Desalination Plant, which will supplement water supplies to areas in the County not covered by municipal water utilities.

The innovative 500 kW wind turbine was designed by Windflow and built under license by General Dynamics SATCOM Technologies Inc. It has a 45 m (148 ft) rotor diameter and sweeps out an area of 1590 square metres, equivalent to nearly one-third of a football field. This is an 80% increase over its well established predecessor machine, the Windflow 33-500, and dramatically improves energy capture at low wind speeds. The Windflow 45-500 is designed for sites with average wind speeds up to 8.5 m/s.



The Windflow 45-500 represents the culmination of decades of experience in the design and development of two-bladed wind turbines. The larger rotor of the Windflow 45-500 motivated a completely new blade design utilizing advanced airfoils, new blade materials, a coned hub, increased free-teeter range, and increased pitch-teeter coupling. All of these features are expected to make for a very efficient, stable, and low-load rotor on the 45-500 continuing Windflow's pioneering vision of advanced two-bladed wind turbines which combine low mass with robustness.

Inside the nacelle, the Windflow 45-500 incorporates a completely new, higher-torque gearbox design with a new embodiment of Windflow's proprietary torque limiting gearbox. The new Low Variable Speed system (international patents pending) significantly increases the turbine's variable speed range, improving energy capture and reducing blade sound levels at lower wind speeds.

The prototype nacelle was assembled in October last year. After rigorous factory testing, the nacelle, tower and blades were moved to site late March. Erection of the turbine went

smoothly, and was complete in only two days. Internal assembly was completed within a week, and the turbine has undergone the commissioning process led by experienced Windflow staff. The prototype 45-500 turbine has generated several hundred kilowatt-hours of electrical energy, and is now ready for continuous operation. Windflow will continue to support the turbine owner, Mitchell County, having recently established a full maintenance and monitoring agreement.

Windflow looks forward to rigorously field-testing this prototype, and is now actively promoting and offering the 45-500 for sales or licensing around the world.

*For further information, please contact Licensing Manager Chris Holsonback at [chris.holsonback@windflow.co.nz](mailto:chris.holsonback@windflow.co.nz) or phone 03 365 8960*

### **Key Features of the Windflow 45-500 Wind Turbine**

- Rotor diameter 45 m, rated power 500 kW
- Swept area 1590 square metres
- Tip height of 60 m (200 ft) or lower, reduces visual impact and siting barriers, for example near airfields
- Designed for IEC Class 2, up to 8.5 m/s mean wind speed, optimized for 7.5 m/s (Class 2/Class 3)
- Proven Windflow two-bladed turbine design
- World-leading energy-to-weight ratio, tower top mass of 20 tonnes
- New rotor design utilizing the most advanced airfoils, new blade materials, a coned hub, increased free-teeter range, increased pitch-teeter coupling
- New patented LVS system provides broad-band variable speed (28-35 rpm), including hydraulic torque limiting (without power electronics), improved energy capture and reduced turbine sound levels at lower wind speeds.

### **About Windflow Technology Ltd**

Windflow is a New Zealand-based publicly listed (NZX: WTL) designer and manufacturer of IEC certified and CE compliant wind turbines. The company is ISO 9001:2008 certified and has a successful track record of designing, installing and operating wind turbines in challenging wind conditions. With more than 500 turbine-years operating experience and an average availability exceeding 95%, Windflow's 33-500 turbine, which is certified by Lloyds Register for Type Approval to IEC 61400-1:2005 (Edition 3), has proven its robust design and high reliability in some of the most challenging wind conditions in the world, with mean wind speeds of 10 m/s and above. Learn more at [www.windflow.co.nz](http://www.windflow.co.nz).