



Products Overview



Introduction

Executive Summary

HelixWind™ is a paradigm breaking distributed generation technology platform. Previous technologies designed to produce electric energy from the wind were focused exclusively on power efficiency and output, ignoring primary consumer concerns blocking widespread adoption, which include: visual impact (aesthetics), restrictive zoning and permitting (primarily height restrictions), and lack of access to wind information. HelixWind will revolutionize the small wind industry by overcoming these obstacles and providing cost effective residential and commercial wind energy systems.

Value Proposition

Helix Wind manufactures products for the distributed power generation industry that respond to customers' concern for global warming and the threat of limited energy supplies, and enables the potential for fossil fuel independence for homes and businesses by utilizing an inexhaustible and abundant natural resource, the wind.

Helix Wind's differentiating advantages include:

- A revolutionary online interactive sales tool for licensed resellers, enabling rapid, simple customer feasibility analysis and sales presentation creation, removing significant barriers to purchase.
- An innovative remote performance monitoring, diagnostic and data aggregation system customized for each reseller or customer and allowing predictive system diagnosis and carbon credit aggregation.
- A iconic brand and technology that is visually compelling and strongly resonates with the mass market.
- Patent-pending next generation VAWT (vertical axis wind turbine) design.
- Low mounting height (30' vs. 60'-90' for horizontal axis wind turbine, or HAWT systems) enables urban permitting and installation.
- Aesthetic, compact design reduces neighborhood opposition concerns.
- Quieter than traditional HAWT wind systems and does not require expensive electronics to control pitch to wind.
- System design ensures bird/bat safety.
- No need to halt or furl blades in high speed winds.
- Smooth functioning in multi-directional and turbulent wind conditions.

Helix Wind's design and support systems are focused on overcoming these obstacles and providing cost effective residential and commercial wind energy systems that:

- Have high aesthetic design appeal.
- Are competitively priced for performance.
- Provide unprecedented customer and reseller support.
- Enable simple permitting.
- Provide remote performance monitoring and data aggregation.




Product Overview

The following provides details of our two initial products the Helix S322 and the S594. You will notice that they reflect the swept area of each product.

S322 – 2.5 kW System

- Rated Capacity – 2.5 kW
 - Peak power - 2.81 kW
 - Rotor Dimensions - 1.21m x 2.65m (4ft x 8.66ft)
 - Swept Area - 3.19m² (34.34 ft²)
 - Rotor Construction – Marine Grade Aluminum Alloy
 - Type - Vertical axis helical Savonius rotor (VAWT)
 - Generator – High efficiency Permanent Magnet Generator
 - Cut-in Speed - 3.6m/s (8 mph)
 - Braking - No braking needed for normal operation. Manual override for maintenance.
 - Electronic Brake - Electronic disc brake for emergency shutdown.
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- Grid Connection - 110VAC - 240VAC, 50-60Hz Grid Tied Inverter.
 - Off grid - Battery charge systems available
 - Weight - 140kg (310lb)
 - Design Life - 30 years
 - Monopole Tower - recommend 4.5m to 6.0m (15ft to 25ft) depending on obstructions
 - Warranty - 5 year Limited Warranty. *Extended warranties available.
 - Unique patent pending design.
 - Rugged aluminum and steel construction for extreme environments
 - Modular, 3D blade for easy assembly and toughness.
 - Helical turbine for smooth power production.
 - Reliable Low RPM Permanent magnet generator.
 - Design gives nearly silent operation at less than 5 decibels above background noise.
 - Completely safe for our friends, the birds and bats.
 - Utilizes turbulent omni-directional air instantly, no yaw control required.
 - Oh, and it's beautiful to look at too (neighbors may become jealous).

S594 - 5 kW System

- Rated Capacity – 5.0 kW
 - Peak power – 5.63 kW
 - Rotor Dimensions - 1.21m x 4.87m (4 ft x 12 ft)
 - Swept Area - 5.88m² (63 ft²)
 - Rotor Construction – Marine Grade Aluminum Alloy
 - Type - Vertical axis helical Savonius rotor (VAWT)
 - Generator - High efficiency Permanent Magnet Generator
 - Cut-in Speed - 3.6 m/s (8 mph)
 - Braking - No braking needed for normal operation. Manual override for maintenance.
 - Electronic Brake - Electronic disc brake for emergency shutdown.
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- Grid Connection - 110VAC - 240VAC, 50-60Hz Grid Tied Inverter.
 - Off grid - Battery charge systems available
 - Weight - 499kg (1100lb)
 - Design Life - 30 years
 - Installation - Roof Top: recommend 2ft above roof line. *consult with Helix Wind field engineers for optimum placement guidelines.
 - Warranty - 5 year Limited Warranty. *Extended warranties available.
 - Unique patent pending design.
 - Rugged aluminum and steel construction for any environment
 - Modular, 3D blade for easy assembly and toughness.
 - Helical turbine for smooth power production.
 - Reliable Low RPM Permanent magnet generator.
 - Design gives silent operation at less than 5 decibels above background noise.
 - Completely safe for our friends, the birds and bats.
 - Utilizes turbulent omni-directional air instantly, no yaw control required.

Wind Turbine Monitoring System (WTMS)

The Wind Turbine Monitoring System (WTMS) provides both Helix Wind and the turbine owner access to real-time data related to their wind turbine(s) in a secure web-based application. The data available will show the current and historical kWh generated, RPMs, inverter status & bearing temperatures. The actual piece of hardware will be located on the owners site and will be connected via a high-speed Internet connection by the owner.

Functions:

- Continuous data collection and storage of wind regime via an integrated anemometer.
- Continuous data collection and storage of turbine system performance.
- Wifi enabled for internet access which supports Helix Wind remote technical support/troubleshooting.
- Fully flexible time based historical data analysis for reporting and forecasting capability (2009 Development) The owner will have the ability to manipulate their turbine data to give them forecasting capabilities as well as overlapping graphical data, similar to Google finance. They can see in graphical form how much power was produced between any two (or more) points in time.

Benefits:

- Easy access to actual (expected if off-grid) electricity savings.
- Efficient centralized remote monitoring of multiple locations/units.
- Further investment opportunities can be defined by the comparison of the multiple locations.
- Early warning system designed to avoid costly unplanned failures
- Alerts may be sent to service provider to proactively plan a service call out
- Remote access to data enables Helix Wind engineering support.

Product Performance Details:

From our theoretical analysis and empirical testing of our product designs, we have developed validated power curves to support end users forecast the productivity of the units.

Product Performance Details		
System	S322 unit	S594 unit
Rated Power (kW)	2.5	5.0
Peak Power (kW)	2.88	5.63
Avg. wind speed at 10m	Average Annual Output	
	kWh	kWh
6.5 (m/s)	1573	2909
7	1965	3636
7.5	2412	4467
8	2914	5402
8.5	3467	6439
9.0	4066	7567
9.5	4705	8778

Annual power output is primarily dependent on the wind regime and appropriate siting of the units.

Wind Regime:

Average annual winds speeds from 7m/s and above offer end users an attractive payback and energy production level. The table above depicts average annual outputs for the S322 and S594 models at average wind speeds based on a Weibull Distribution with a factor of 2. Ultimately, the performance of the units depends on the wind regime at the precise position of the turbine.

Turbine Positioning:

After the average wind speed, the primary concern when choosing an installation site is the quality of wind flow. Wind turbines should always be located as far away as possible from possible obstacles to the flow of wind. Buildings and environmental surroundings can cause turbulence. Although perfectly laminar flow is always preferable, the Helix Wind products are specifically designed to respond positively in non-laminar flow situations. The VAWT can respond to wind gusts from every direction and all gusts contribute to the unit rotating in the same direction. Further advice on positioning can be provided by Helix Wind Engineering.



HELIXWIND™
Savonius R & C series

OUR PHILOSOPHY

Freedom is at the heart of our values – energy independence and autonomy – a freedom fueled by a resource that never runs out. The wind.

Often the simplest and most elegant solutions are the best. We believe that energy self sufficiency is better than the current antagonistic legacy system in decline. However, progressive change requires courage, creative and positive innovation and unerring focus on performance. This is the soul of the Helix system.

WHY HELIX WORKS:

Inexpensive, reliable, simple, the hallmarks of the Helix system make it the best choice for small wind residential and commercial applications. Our Savonius turbine based design catches wind from all directions creating smooth powerful torque to spin the permanent magnet generator. Mounted up to 35 feet high, in winds as low as 10 mph the Helix Wind system creates electricity to power your home or business.

HOW IT WORKS:

As the wind blows the long helical blade scoops catch wind from all directions forcing it through the turbine. The turbine generator is connected directly to your home and as electricity is generated your home is powered. If the wind isn't blowing your home is powered by the energy grid as usual. If the wind is blowing strongly then your energy produced can exceed your energy consumed. Depending on your local utility, your meter can spin backwards rolling back your energy bill.

IS HELIX RIGHT FOR ME?

The Helix R series is designed for home use and the C series are designed for commercial applications. If your location fits the conditions below then the Helix turbines will most likely work for you:

- Local zoning that permits small wind turbine installation.
- A site with adequate wind greater than 7 m/s (15mph) and an installed height of at least 6 m (20 feet).
- An existing interconnection agreement with your local utility
To check the net energy meeting regulations in your state refer to this website: <http://www.awea.org/smallwind/states.html>
- Turbulent or gusty wind or wind that frequently changes direction.

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