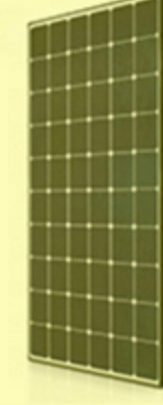


2016 Comparative Analysis of Leading Small Wind Turbines vs. Baseline Solar

						 x 10*
Model	Vortexis 1.0 kW	Bergey 1.0 kW	VisionAR³ UGE-3M 1.0 kW	Windspire Series IV 1 kW	Aeolos-V 1.0 kW	LG310N Cello
Manufacturer	Vortexis Energy Solutions	Bergey	Urban Green Energy	Windspire	Aeolos	LG
Country	USA	USA	USA	USA	Denmark	
Turbine Type	VAWT	HAWT	VAWT	VAWT	VAWT	
Rated Power Output	1000 watts	1000 watts	1000 watts	1000 watts	1000 watts	
Wind Speed at Output	11 m/s	11 m/s	11 m/s	11 m/s	11 m/s	
Max Power Speed	32.9 m/s (73.6 mph)	13 m/s (29 mph)	14 m/s (31 mph)	14.5 m/s (32.4 mph)	31.8 m/s (71.1 mph)	
Cutin Wind Speed	2.2 m/s (5 mph)	3.0 m/s (6.7 mph)	3.5 m/s (7.8 mph)	3.6 m/s (8 mph)	4.0 m/s (8.9 mph)	
Cutout Wind Speed	None	None	20 m/s (44 mph)	15.6 m/s (35 mph)	None	
Max Design Speed	54 m/s (120 mph)	54 m/s (120 mph)	50 m/s (110 mph)	50 m/s (110 mph)	50 m/s (110 mph)	
Turbine Efficiency	35%	26%	23.4%	15.3%	23.6%	
Blade Design Material	Composite Material	Fiberglass	Fiberglass	Metal	Aluminum Alloy	
Diameter & Height	2m x 2.7m (6'6" x 8'9")	2.5m x 5m (8'3" x 16'5")	1.8m x 3.2m (5'11" x 10'6")	1.37m x 9.2m (4'6" x 30')	2m x 2.8m (6'6" x 9'3")	1640 x 1000 x 40 mm
Weight	27.2 kgs (50 lbs)	34 kgs (75 lbs)	300 kgs (662 lbs)	351 kgs (775 lbs)	28 kgs (61.6 lbs)	17.0 ± 0.5 kg / 37.48 ± 1.1 lbs
Overspeed Protection	Auto Safety Switch & Brake	Auto-Furl	Auto Safety Switch & Brake	Stop Switch	Safety Switch & Brake	
Noise	<41 dB(A)	N/A	41 dB(A)	N/A	<45dB(A)	
Low RCS	YES	NO	NO	NO	NO	
Temperature Range	-40 C to 121 C (-40 F to 250 F)	-40 C to 60 C (-40 F to 140 F)	-25 C to 40 C (-14 F to 105 F)	-25 C to 45 C (-14 F to 113 F)	-20 C to 50 C (-4 F to 122 F)	
Generator	Three Phase Permanent Magnet	Permanent Magnet Alternator	Three Phase Permanent Magnet	Permanent Magnet	Permanent Magnet	
Output Form	270 Volt Off-Grid/ 530 Grid-Tie	12 - 48 Volt DC	270 Vdc Off-Grid/ 530 Vdc Grid-Tie	240 Volt AC Split Phase	48/110 Volt	
Generator Elec. Safety	N/A	N/A	UL 1004 / CSA C22.2	N/A	UL 1004 / CSA C22.2	
Yearly Power Output	2467 kWh ¹	1984 kWh	1444 kWh	501 kWh	1603 kWh	
Yearly Output w Gusts	28989 kWh ³	16038 kWh	9711 kWh	5019 kWh	18029 kWh	
Price Per Unit	TBD	\$4500	\$12,000	\$10,900	\$7800	\$7500 average + generator
Bird/ Avian Friendly	YES	NO	NO	NO	NO	
ISO 9001	N/A	NO	YES	NO	YES	
European Conformity	N/A	NO	YES	NO	YES	
SWCC	N/A	AWEA 9.1-2009	NO	NO	NO	
*Solar requirements are based upon historical data from Cape Canaveral.						

1. Data for Vortexis Turbine Systems is the result of extensive test results compiled from R & D at the University of Miami between 2009 and 2015. Wind is steady-state 11 meters per second.

2. Comparative baseline data are the courtesy of UGE International, AWEA (American Wind Energy Association), SWCC (Small Wind Conference Council), and the DOE (Department of Energy).

3. Yearly output incorporating specific hourly historical gust data interpolated for Cape Canaveral over a one year time-frame.