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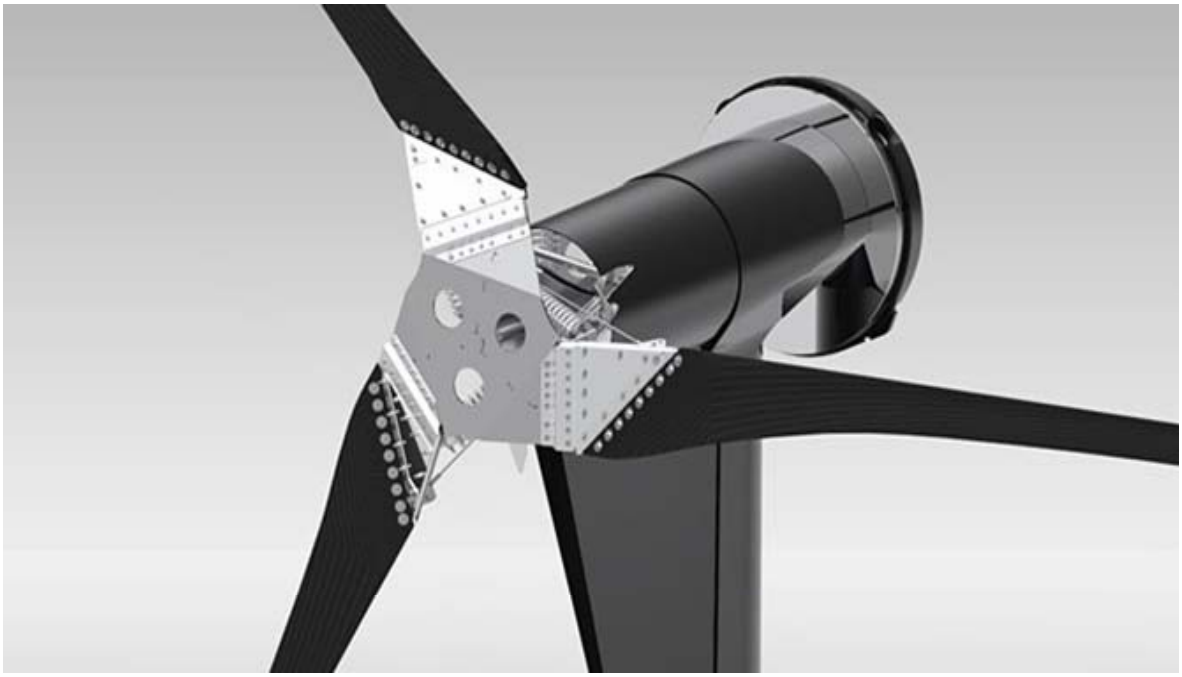
High Performance Wind Turbines –Manufactured by Proven Energy



Proven Energy turbines are robust, reliable and elegant producing energy under the harshest of conditions. Proven Flexible Blade System enables the wind turbine to generate power in light or strong winds. Proven Energy produces a series of 3 wind turbines, each designed to offer sustainable energy solutions across a wide range of industry sectors, from domestic to offshore.

Robust

Proven Energy provides the world's only robust, low maintenance turbine. We work closely with clients in a number of key market sectors to make sure their specific electricity generation needs are met.
Proven Energy's internationally patented turbine has undergone extensive testing under the most rigorous of climate conditions. Our market-leading installations operate successfully throughout the world.
Unlike upwind turbines, the system works with nature and not against it. It lets you get the most out of any wind speed, helping to maximise your investment.

Low Noise

A Proven Energy turbine is designed to minimise noise and maintenance. It has a direct drive generator, which operates without a gearbox. The generator load is continuously monitored to keep the blades rotating at a low speed, whilst optimising power output. Compared with other modern small turbines, the blade tip speed of a Proven Energy turbine is low. This means that noise is reduced substantially. All that can be heard is the swish of blades turning in the wind, which is virtually unnoticeable. But don't just take our word for it

Low Maintenance

Proven Energy controllers are designed to run the system automatically and display power output from the turbine. The power connectors and turbine brake are easily accessible at the base of the mast.
There is no need for specialist skills. On installation you will receive an easy-to-follow user guide, which gives you all the information you need. We recommend regular maintenance checks for optimum performance.

Proven 15 Design Features

- Axial fliux generator
- Ellliptical blade tip design
- Hydraulically damped blades
- Proven patened Zebedee hinge at blade roots
- New stiffened head frame
- New ergonomic brake operation
- Fail safe cable operation of blade control mechanism
- Updated generator geometry
- First Proven turbine to be tested to the brand new BWEA wind turbine standard

Technical Specifications

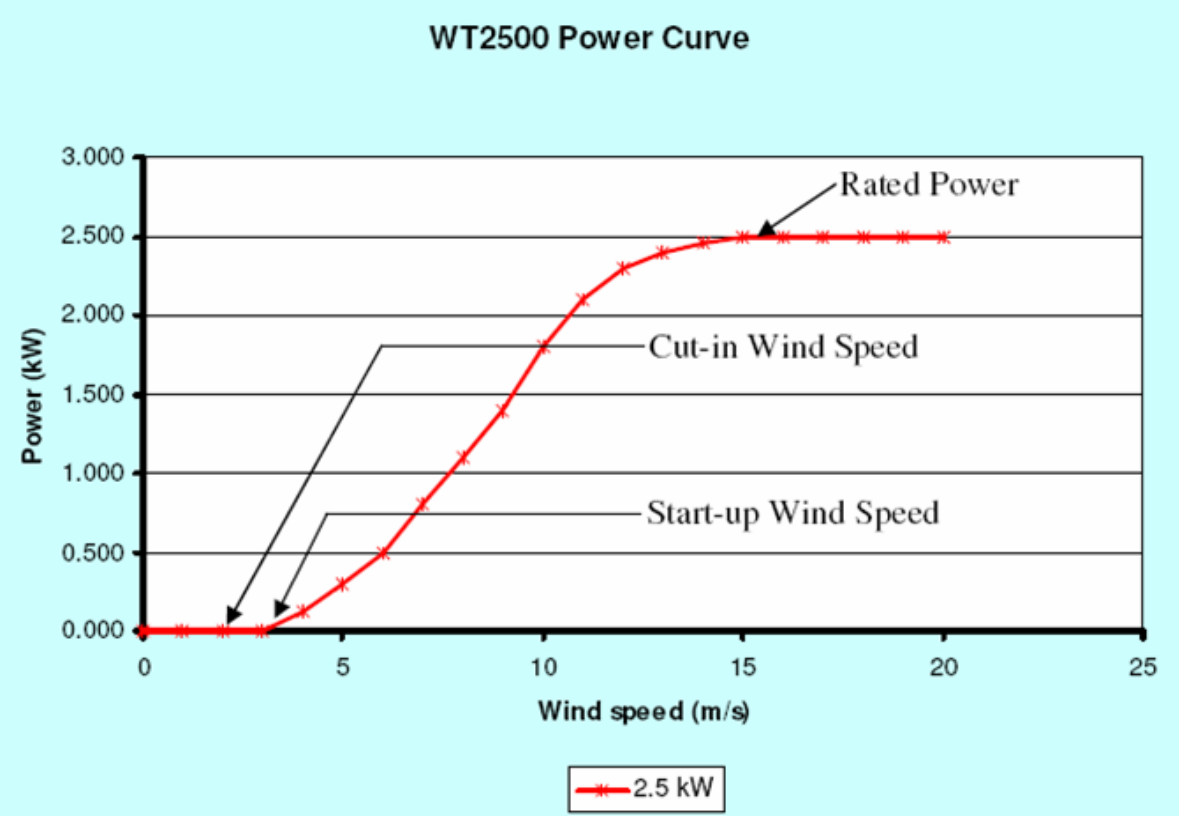
Model	Proven 2.5 – 2.5W	Proven 6 – 6KW	Proven 15 – 15KW
Rated Output	2500 W	6000 W	15000 W
Voltage available	12V / 24V / 48V / 120V / 240V / 300V	48V / 120V / 240V / 300V	48V / 300V
Off grid	Yes	Yes	Yes
On grid	Yes	Yes	Yes
Cut in	2.5 m/s	2.5 m/s	2.5 m/s
Cut out	None	None	None
Survival	70 m/s	70 m/s	70 m/s
Rated	12 m/s	12 m/s	12 m/s
Rotor type	Down wind, self regulating	Down wind, self regulating	Down wind, self regulating
No of blades	3	3	3
Blade material	Polypropylene	Glass thermoplastic Composite	Glass thermoplastic Composite
Rotor diameter	3.5 m	5.5 m	9 m
Generator type	Brushless, direct drive and Permanent magnet	Brushless, direct drive and Permanent magnet	Brushless, direct drive and Permanent magnet
Battery charging	24 or 48V DC	48 VDC	48V DC
Grid connect	230VAC 50Hz or 240VAC 60Hz	230VAC 50Hz or 240VAC 60Hz	230VAC 50Hz or 240VAC 60Hz
Direct heating	240 VAC	240 VAC	240 VAC
Rated RPM	300	200	150
Annual output[1]	2500 – 5000 KWh	6000- 12000KWh	15000-30000 KWh
Head weight	190 kg	600 kg	1100 kg
Mast type	Tilt up, tapered, self supporting, no guy wires	Tilt up, tapered, self supporting, no guy wires	Tilt up, tapered, self supporting, no guy wires
Hub height	6.5 or 11 m	9 or 15 m	15 or 25
WT found	1.6 x 1.6 x 1 or 2.5 x 2.5 x 1 m	2.5 x 2.5 x 1 or 3 x 3 x 1.2	3.7 x 3.7 x 1.2 or 1.5 x 1.5 x 1.2
Winch found	0.65 x 0.65 x 0.65 or 1 x 1 x 1 m	1 x 1 x 1 or 1.5 x 1.5 x 1	No archor foundation for 25m
Tower weight	241 or 445 kg	360 or 656 kg	1478 or 2794 kg
Mechanical brake	Yes	Yes	Yes
Noise[2] level at 5m/s	40 dBA	45 dBA	48 dBA
Noise level at 20m/s	60 dBA	65 dBA	65 dBA
Rotor thrust	5 KN	10 KN	26KN

1 Output range is quoted to cover typical average wind speed (annual). Lighter wind sites with typical 4.5m/s will produce lower end of the range, while higher wind speed

2. All reading taken with an ATP SL 25dBA at the base of the tower at a height of 1.5m. A car passing 20m away at approx 65km/h is 70-80 Dba.

Power Curve

Proven 2.5 – 2.5KW



Proven 6 – 6.0 KW