

Domestic Wind Turbines

Quiet and reliable wind energy systems for homes

.Recent developments in renewable energy mean that small wind turbines are now readily deployable for residential use.



Modern domestic wind turbine installations are characterised by their high reliability, attractive appearance, minimal noise levels and highly integrated power management systems.

Energy Liberators is now in a position to offer a range of renewable energy options to developers of new housing developments. Energy Liberators specialises in so-called "grid-tie" systems whereby the power produced by the wind turbine is used to offset the cost of the mains-supplied electricity. Such systems are highly attractive to customers who can boast of heavily reduced electricity bills and the ability to run their electricity meter backwards.



At the highest level a grid-tied wind turbine system consists of three essential sets of components: the wind turbine, the wind turbine mounting system and the power handling electronics

- **Wind Turbine:** Energy Liberator wind turbines are supplied in a range of wattages from 400 watts to

20kw. However, it is the 600 watt -1kw range that is the most suitable for domestic use. Typically our wind turbines have the following features:

- Highly efficient 3-phase generators based upon rare earth permanent magnets
- Bodies constructed from high-quality, highly durable, precision-cast aluminium and other durable materials
- Three or five high performance blades manufactured using specialized precision injection moulding processes.
- **Mounting System:** to guarantee useful wind flow, wind turbines must be erected above surrounding obstacles. The most effective and discrete way to achieve this in a housing development is to use six meter high, tapered, free standing, galvanized steel, hexagonal-section towers.
- **Power Electronics:** it is the task of this set of components to safely condition and transform the energy produced by the wind turbine such that it may be combined with the power from the mains grid. The most significant component is the grid-tie inverter. Energy Liberators are Irish distributors for SMA's Windy Boy range which has rewritten the rules for renewable energy power electronics with unprecedented reliability, functionality and efficiency. The SMA range is also noteworthy for its optional Sunny Beam data acquisition system that wirelessly acquires and graphically presents system status information.

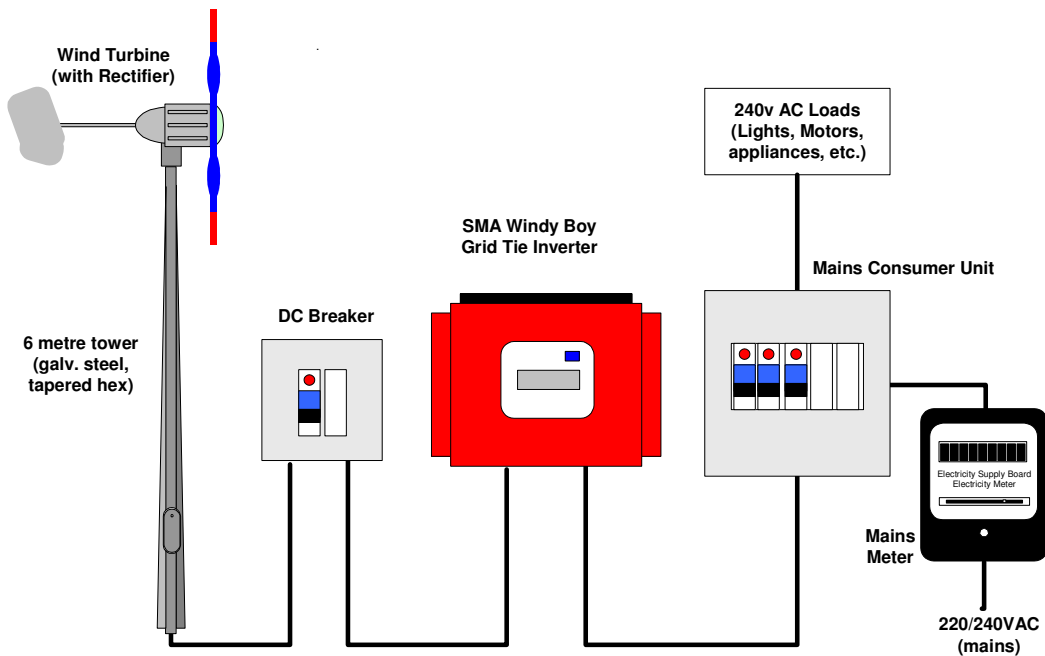


System Installation and Maintenance

Installing a typical Energy Liberators system requires the hexagonal tower to be erected using the standard methods used to erect street lamps. Once the tower is in place, the turbine can be easily bolted on top. Cabling is then taken from the tower to the residence where it is connected to the power electronics and the rest of the household cabling. Final commissioning can be easily completed by any qualified electrician – no specialised knowledge of renewable energy systems is required.

Please see overleaf for an installation schematic.

Schematic of Energy Liberators Grid-Tied Wind Turbine Installation



Equipment Specifications

	Wind Turbines	
	600w	1000w
Generator Type	3 phase generator with high-quality permanent magnets	
Body/Casing	Precision cast aluminium	Zinc-plated Steel, Stainless Steel, Powder-coated and anodised aluminium
Blade/Rotor Construction	3 Blades, Advanced injection moulded thermoplastic	5 top-grade glass filled nylon turbine blades
Rated Power	600w	1600w
Maximum Power	750w	1200w
Output Voltage	24v	48v
Rotor Diameter	1.8 meters	1.8 meters
Start Wind Speed	2.3 m/s	2.0 m/s
Cut-in Wind Speed	3.0 m/s	3.2 m/s
Rated Wind Speed	12.0 m/s	11.5 m/s

SMA Windy Boy
<ul style="list-style-type: none"> Optimized for very low input voltages of 21 V to 60 V Freely configurable output characteristic curve For indoor and outdoor installation SMA grid guard 2. Auto disconnection unit Galvanic isolation from grid by means of transformer Extended temperature range of -20°C to +6 °C Integrated 2-line display Diagnostics and communication via display, network, radio and cable 5-year SMA warranty (10 years optional)

For More Information:

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