

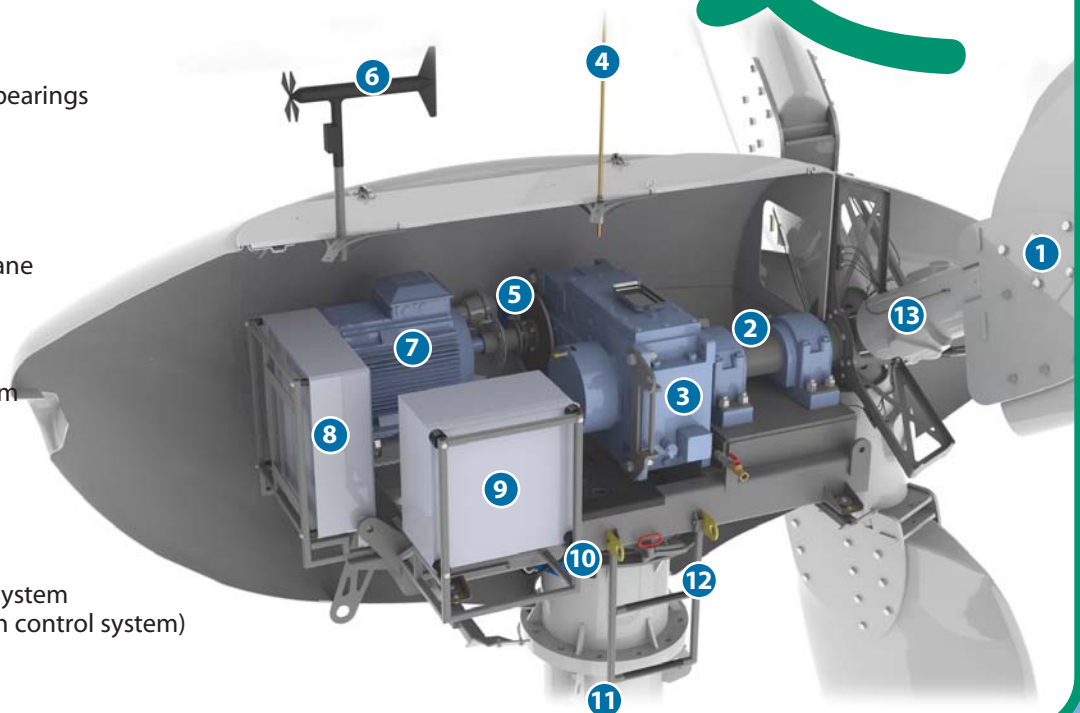
CLEAN ENERGY... JUST PLUG IT IN

Endurance
wind power

E-3120

E-3120 50 kW model

- 1 9 m blade
- 2 Main shaft with two bearings
- 3 Gearbox
- 4 Lightning protection
- 5 Disk brake
- 6 Anemometer wind vane
- 7 Generator
- 8 Control panel
- 9 Braking control system
- 10 Passive yaw control with brake
- 11 Tower
- 12 Access ladder
- 13 Aerodynamic safety system (patent pending pitch control system)



ENDURANCE WIND TURBINES GREEN ENERGY THAT WORKS

TURBINE

Configuration	3 blades, horizontal axis, downwind
Rated power @ 11 m/s	55 kW
Applications	Direct grid-tied
Rotor speed	41 rpm
Cut-in wind speed	3.5 m/s (7.8 mph)
Cut-out wind speed	25 m/s (56 mph)
Survival wind speed	52 m/s (116 mph)
Design lifetime	30 years *
Overall weight	3,990 kg (8,800 lbs)

ROTOR

Rotor diameter	19.2 m (63 ft)
Swept area	290 m ² (3120 ft ²)
Blade length	9 m (29.5 ft)
Blade material	Fiberglass / Epoxy
Power regulation	Stall control (constant speed)

GENERATOR

Frequency	60 Hz
Voltage	480 V
Phase	Three phase
Type	Induction generator

BRAKE & SAFETY SYSTEMS

Main brake system	Rapid fail-safe brake on high speed shaft
Secondary safety system	Pitch control system (for over speed regulation) using passive spring loaded mechanism (patent pending)
Automatic shut down triggered by :	<ul style="list-style-type: none"> - Over speed - High wind speed - Grid failure - All other fault conditions

CONTROLS

PLC based	Includes remote monitoring software
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WARRANTY

Turbine, controls	5 years
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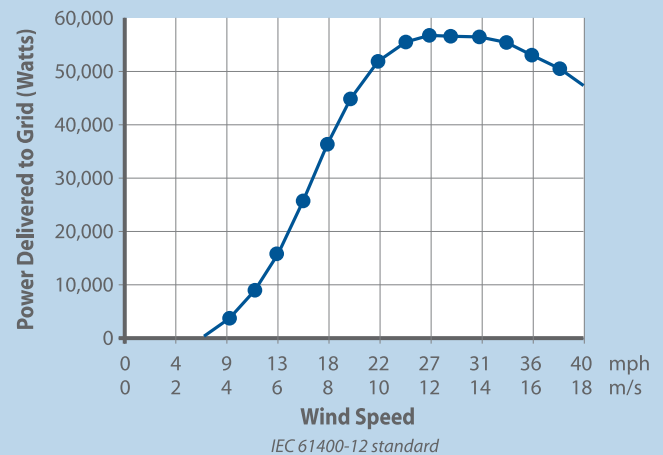
TOWERS

Types and heights	Standard Monopole 30.5 m (100 ft) Standard Lattice 42.7 m (140 ft) Custom heights available
Maintenance Access	Working space inside the nacelle Top work platform and safety cable climbing system

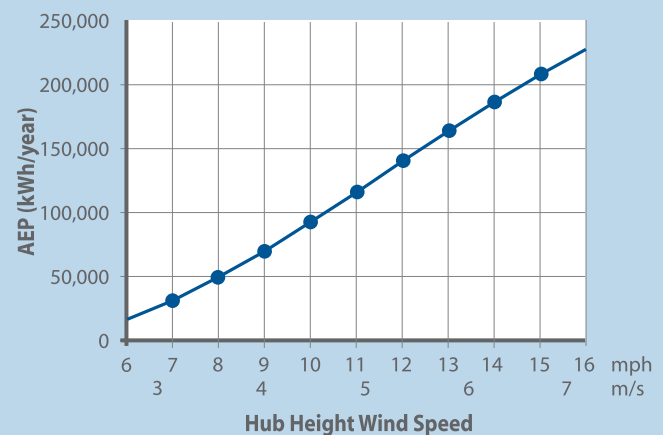
*Provided service and maintenance schedules are strictly followed



POWER CURVE



ANNUAL ENERGY PRODUCTION (AEP)



WIND SPEED CONVERSION TABLE

m/s	4	5	6	7	8	9	10	12	14	25	32	45
km/h	14	18	22	25	29	32	36	43	50	90	125	160
mph	9	11	13	16	18	20	22	27	31	56	80	100