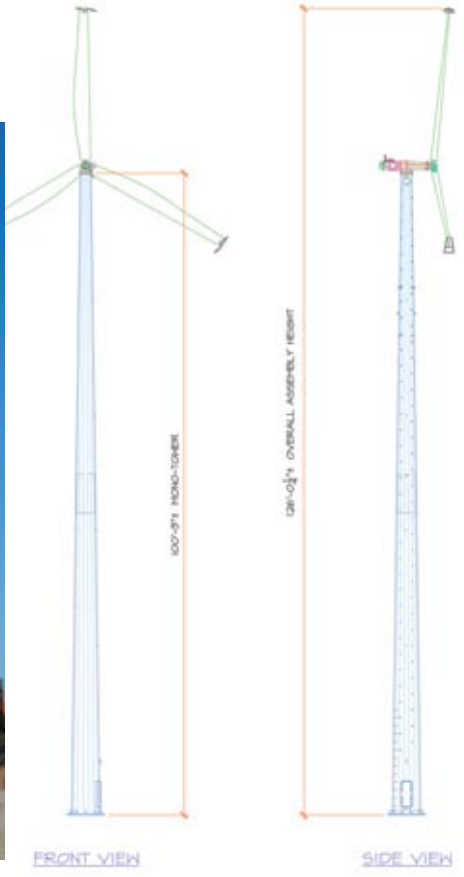
Entegrity
WIND SYSTEMS INC.

*Manufacturers of the **EW50***
Commercial-Scale Wind Turbine

EW50 Power Curve, 60hz

Entegrity Wind Systems is a leading manufacturer of commercial-scale wind turbines with installations worldwide. The EW50 is a 50-kilowatt wind turbine generator designed to supplement electric power generation for large buildings, industry, commercial operations, large farms, communities, schools, and remote locations.

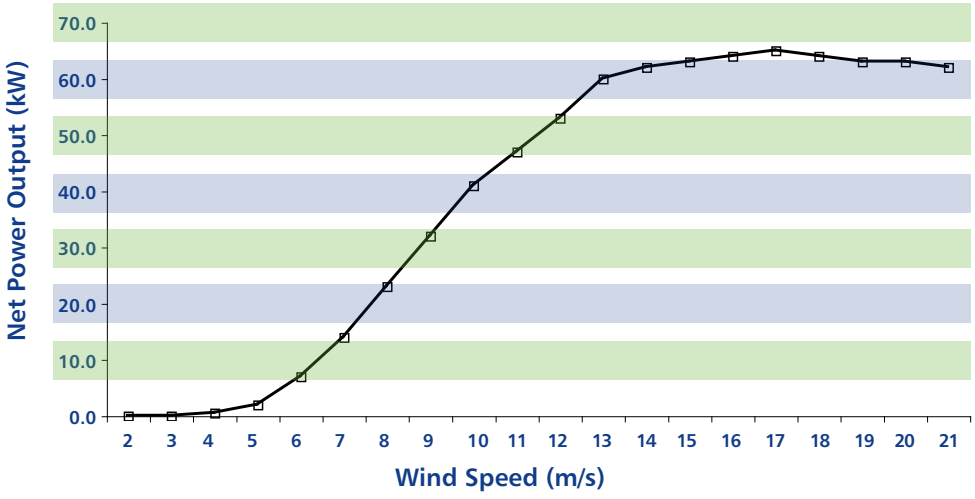
The EW50 is an ideal investment to combat rising utility rates by enabling owners to secure their costs for electrical energy against higher future costs. The EW50 has a 30-year design life and comes with a 5-year warranty and 5-year O&M agreement.



Expected Annual Net Energy Production

Wind Speed (m/s)	Wind Speed (mph)	AEP Sea Level (kWh)
4	8.9	33000
4.5	10.1	51000
5	11.2	71000
5.5	12.3	94000
6	13.4	119000
6.5	14.5	143000
7	15.6	167000
7.5	16.8	190000
8	17.9	212000
8.5	19	232000
9	20.1	250000
9.5	21.2	265000
10	22.4	278000
10.5	23.5	289000
11	24.6	297000

EW 50 Power Curve (Sea Level)



EW50 Specifications

1. SYSTEM

Type	3 ϕ Grid Connected
Configuration	Horizontal Axis
Rotor Diameter	15 m (49.2 ft)
Centerline Hub Ht.	31.1 m (102 ft)

2. PERFORMANCE PARAMETERS

Rated Electrical Power	50 kW @11.3 m/s (25.3 mph)
Wind Speed Ratings	
Cut-in	4.0 m/s (8.9 mph)
Shut-down (high wind)	25 m/s (56 mph)
Design Speed	59.5 m/s (133 mph)
Average Annual Output	Class 2 115,000kWh
at Sea Level	Class 3 149,000kWh
	Class 4 177,000kWh

3. ROTOR

Type of Hub	Fixed Pitch
Rotor Diameter	15 m (49.2 ft)
Swept Area	177 m2 (1902 ft2)
Number of Blades	3
Rotor Solidity	0.077
Rotor Speed @ 50kW Nameplate Capacity	65 rpm
Location Relative to Tower	Downwind
Cone Angle	6°
Tilt Angle	0°
Rotor Tip Speed	51 m/s (114 mph) @ 60 Hz
Design Tip Speed Ratio	6.1

4. BLADE

Length	7.2 m (23.7 ft)
Material	Epoxy /glass fiber
Blade Weight	150 kg (330 lbs) approximate

5. GENERATOR

Type3 phase/4 pole asynchronous	
Frequency	60 Hz
Voltage	3 phase @ 50/60 Hz, 415-600
kW @ Rated Wind Speed	50 kW
kW @ Peak Continuous	66 kW
Insulation	Class F
Enclosure	Totally Enclosed Air Over

6. TRANSMISSION

Type	Planetary
Housing	Ductile Iron
Ratio (rotor to generator sp)	1 to 28.25 (60 Hz)
Rating, output horse power	88
Lubrication	Synthetic gear oil/non-toxic
Heater (option)	Arctic version, electric

7. YAW SYSTEM

Normal	Free, Passive
Electrical	Twist Cable

8. TOWER

Type	Free standing monopole or galvanized lattice
Lattice Tower Heights	80', 100', 120'
Monopole Tower Heights	80', 100', 120'
Monopole Options	Ladder, Finish

9. FOUNDATION

Type	Monolithic Slab or Custom

10. CONTROL SYSTEM

Type	Microprocessor based
Communications	Cellular or Internet/Ethernet connection to central computer for energy monitor and maintenance dispatch
Enclosures	NEMA 1, NEMA 4 (optional)
Soft Start	Optional

11. ROTOR SPEED CONTROL

Running	Passive stall regulation
Start-up	Aerodynamic
Shut-down	Aerodynamic tip brake Parking brake for servicing

12. BRAKE SYSTEM CONTROL

Fail-safe aerodynamic and parking brakes

13. APPROXIMATE SYSTEM DESIGN WEIGHTS

100' Lattice Tower	3,210 kg (7,080 lb)
100' Monopole Tower	7,281 kg (16,051 lb)
Rotor & Drive Train	2,420 kg (5,340 lb)

14. DESIGN LIFE

30 Years

15. DESIGN STANDARDS

IEEE 1547 compliant, CE certified, UL listed

16. DOCUMENTATION

Installation Guide and Operation and Maintenance Manual

17. SCHEDULED MAINTENANCE

Semi-annual

EW50 SPECIFICATIONS

Entegrity
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Entegrity Wind Systems

Entegrity Wind Systems Inc. is a privately held corporation with offices in Boulder, Colorado and manufacturing in Charlottetown, Prince Edward Island, Canada and Montreal, Quebec. The company has over 30 employees with years of experience in wind and distributed energy.

The EW50 is based on the Atlantic Orient Corporation 15/50 design and includes a NREL-patented blade design, robust drive train and a sophisticated monitoring and control system. Entegrity engineers and technicians are committed to continuous improvement. The EW50 outperforms its predecessors, while maintaining the same simple, durable configuration.

Entegrity's staff of technicians and comprehensive network of partners ensure that the EW50 fleet exceeds performance expectations. Our project development engineers and technical staff are available to assist in the planning of your wind energy project.

EW50 Timeline

1980's
Over 700 Enertech 44/40 machines installed in California

1991
Atlantic Orient Corporation founded in Vermont, USA – AOC 15/50 prototype based on Enertech 44/40

1993
AOC 15/50 installed at:
- North Cape, PE, Canada (AWTS)
- Rocky Flats, CO (NREL)
- Bushland, Texas (USDA)

1993-2002
48 AOC 15/50 installations worldwide

1996
The AOC 15/50 design was selected for round robin testing by four national government laboratories to validate testing procedures:
- US National Renewable Energy Laboratory (NREL) in Colorado
- Atlantic Wind Test Site (WEICan) in PE, Canada
- Risø National Laboratory in Denmark
- The Center for Renewable Energy Sources (CRES) in Greece

1998
Entegrity Partners, L.P. invests in AOC

1999
8 installations completed for Kotzebue, AK

2002
Entegrity Wind Systems Inc. is formed
Manufacturing is located in Canada

2004
AOC 15/50 Turbine name changed to EW15, owned by Entegrity Wind Systems Inc.

2005
U.S. Sales Office formed

2006
Shallowater, Texas – 5 turbines installed at the school district

3 more installations to Kotzebue, totaling 14 turbines

2007
Installations increased by 236%

Quinter, Kansas – 1st Monopole installation at a school in Kansas

2008
Turbine name change to EW50
- Denotes rated capacity

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4855 Riverbend Road #100 Boulder, CO 80301
303.440.8799 | www.entegritywind.com