

M-130 TURBINE

M-130 System Specifications:

Generator

Rated Power: 130 Kw at approximately 35 mph
 Type: 3 phase, 60 Hz synchronous 480 VAC
 RPM: 1200 (3 phase)

Monopole Tower

Construction material; Hot dipped galvanized steel plate
 Height 75 ft
 Hub height: 78 ft
 White colored paint coating
 Nacelle access: interior tower ladder through locked door
 Base Diameter: approx. 6.25 ft
 Control Panel located inside bottom of tower

Rotor

Orientation: Upwind
 Aerostar 10 meter
 3 blades, fixed pitch
 71'6" diameter

Blades

Fiberglass
 Weight – approx. 1700 lbs.
 Area swept: 4,020 sqf
 Centrifugal blade –tip brakes

Refurbishment process includes inspection and replacement of all parts necessary.

Generator is re-wound and bearings are replaced (Auxiliary cooling fan installed)

Gearbox has all seals and bearings replaced with new oil. Gears and shafts thoroughly inspected and replaced if needed

The magnetic brake units are tested, switches replaced, magnets tested or replaced, new boots, new brake pads.

Yaw motor is replaced, bearing and seals replaced. Yaw gear is replaced.

Slew ring is remanufactured or replaced.

The main shaft bearings and seals are checked and replaced if necessary.

The main shaft is ultra sound tested and checked for run out, and replaced if standard not met.

Wiring and Old electronics are replaced

The blades are inspected, repaired/remanufactured, balanced and matched as a set.

The blade tips are remanufactured springs tested and all bearing and cams replaced

Tower is degreased, safety stops installed and painted.

Nacelle is degreased and painted and additional air inlets installed.

M-130 (2 year parts and labor warranty,
 Service included in warranty cycle, travel not included)

Installation _____
 Travel and Expenses from Otis, Ks) _____
 Foundation (typical) _____
 Electrical (depending on placement) to handle 300 amps _____

Extended Warranty 3 year or 5 year total (7% or 15% of purchase price payable on purchase of turbine)

Terms 50% down payment at purchase. Additional 25% plus foundation cost at completion of foundation, final 25% payment including travel and expenses at project completion.

Component Weights

Nacelle, Bedplate, Rotor and blades: 15,700 lbs
 Tower (3 sections): 16,800

Operational

Cut in speed: 11mph
 Cut-off speed: None (stall regulated blades)
 Survival wind speed: 120 mph

Other

New electronic controls panel
 New Wiring

Options

Internet accessibility
 Heated wind vane
 Transmission heater
 Noise damping foam installed

Safety Features

Induction generator anti-islanding
 Fail safe hydraulic disk brake
 Blade over speed centrifugally actuated tip brakes
 Thermal protection on generator
 Thermal protection for yaw controls
 Vibration sensor for fault shutdown

Turbine	M-130
	3 Phase
Power Output kWh	
40% Production	455,520
30% Production	341,640
Income 40% Production	
\$.04 per kWh	\$18,220
.05	22,776
.06	27,331
.07	31,886
.08	36,441
.09	40,997
.10	45,552
Income 30% Production	
\$.04 per kWh	\$13,665
.05	17,062
.06	20,498
.07	23,914
.08	27,331
.09	30,747
.10	34,164
Income Production Tax Credits \$0.019	
40% Production	8,655
30% Production	6,491
Prices subject to change based on turbine availability	
Unit Price	

