



DOE/NASA 200kW EXPERIMENTAL WIND TURBINE  
Culbra Island, Puerto Rico

200 KILOWATT WIND TURBINE SPECIFICATIONS

Rotor

Number of blades	2
Diameter, ft.	125
Speed, rpm	40
Direction of rotation	Counterclockwise (looking upwind)
Location relative to tower	Downwind
Type of hub	Rigid
Method of power regulation	Variable pitch
Cone angle, deg	7
Tilt angle, deg	0

Blade

Length, ft.	59.9
Material	Aluminum
Weight, lb/blade	2300
Airfoil	NACA 23000
Twist, deg.	26.5
Solidity, percent	3
Tip chord, ft.	1.5
Root chord, ft.	4
Chord taper	Linear

Tower

Type	Pipe truss
Height, ft.	93
Ground clearance, ft.	37
Hub height, ft.	100
Access	Hoist

Transmission

Type	Three-stage conventional
Ratio	45:1
Rating, hp.	460

Generator

Type	Synchronous ac
Rating, kVA	250
Power factor	0.8
Voltage, V.	480 (three phase)
Speed, rpm.	1800
Frequency, Hz	60

Orientation drive

Type	Ring gear
Yaw rate, rpm	1/6
Yaw drive	Electric motors

Control system

Supervisory	Microprocessor
Pitch actuator	Hydraulic

Performance

Rated power, kW	200
Wind speed at 30 ft, mph (at hub):	
Cut-in	6.9 (9.5)
Rated	18.3 (22.4)
Cut-out	34.2 (40)
Maximum design	125 (150)

Weight (klb)

Rotor (including blades)	12.2
Above tower	44.9
Tower	44.0
Total	88.9

System life

All components, yr.	30
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## **ANEJO H**

### **NUEVO MAPA DE NREL ACERCA DE LA VELOCIDAD PROMEDIO DE LOS VIENTOS (A LA ALTURA DE LOS ROTORES) EN PUERTO RICO**

**U.S. Department of Energy - Energy Efficiency and Renewable Energy**  
Wind and Hydropower Technologies Program - Wind Powering  
America

**Puerto Rico and U.S. Virgin Islands Wind Resource Map**

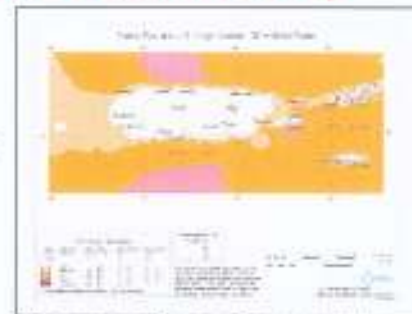
The Department of Energy's Wind Program and the National Renewable Energy Laboratory (NREL) published a new wind resource map for Puerto Rico and the U.S. Virgin Islands. This resource map shows wind speed estimates at 50 meters above the ground and depicts the resource that could be used for utility-scale wind development. Future plans are to provide wind speed estimates at 30 meters, which are useful for identifying small wind turbine opportunities.

As a renewable resource, wind is classified according to wind power classes, which are based on typical wind speeds. These classes range from Class 1 (the lowest) to Class 7 (the highest). Given the advances in technology, Class 3 and higher resource areas can support utility-scale development.

The map indicates that Puerto Rico and the U.S. Virgin Islands have wind resources that can be considered for utility-scale production. The best wind resource areas are concentrated on the highest ridge crests and on exposed capes.

Note: Wind resource at a micro level can vary significantly; therefore, you should get a professional evaluation of your specific area of interest.

If you have a disability and need assistance reading the wind map, please email the [Webmaster](#).



This map of Puerto Rico and the U.S. Virgin Islands shows the wind resource at 50 meters.

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