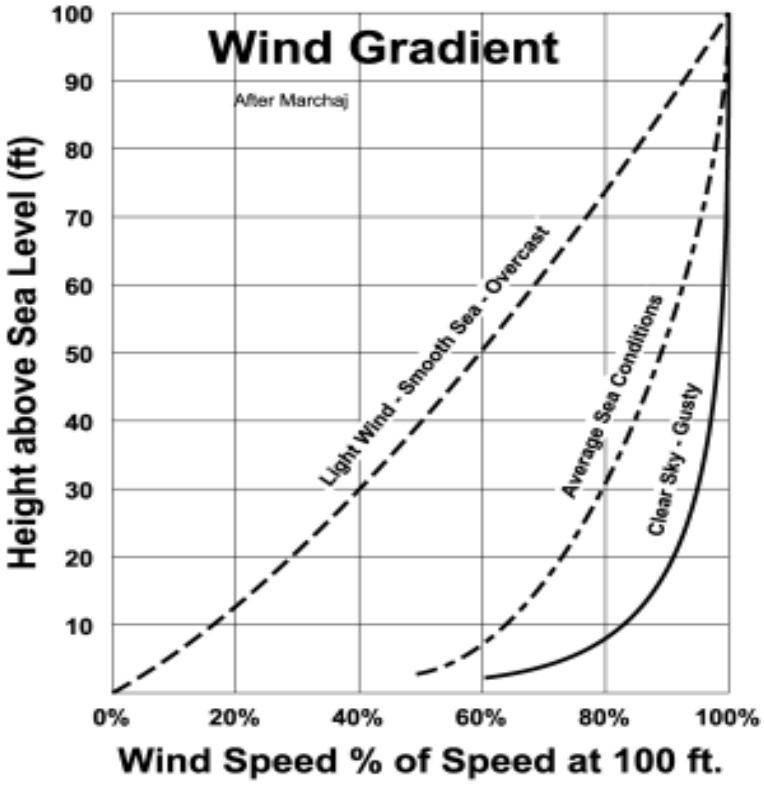
City Windmills
Small Wind Turbines For Urban Use

Wind gradient, why higher is better..

Ask a glider pilot why he lands so fast, and he will explain "because of wind gradient!!" - namely below 30 metres the wind speed drops off significantly, dangerous for an unpowered aircraft dependent on lift under its wings for a controlled landing...

As one can see from the graph below, a wind speed of 10 m/s at 100 feet (30 metres) is less than 2 m/s at 10 feet (wind speeds are typically measured at a height of 30 feet/10 metres). Thus for an installation of a wind turbine, with power output a cubic function of wind speed, **height is paramount... So an average wind speed of 5 m/s (at 30 feet) could be 12.5 m/s at 100 feet, generating 2.5^3 = almost 16x the power output at the average recorded wind speed!!**



N.B. Coastal winds:
The magnitude of winds offshore are nearly double the wind speed observed onshore. This is attributed to the differences in friction between land masses and offshore waters. Therefore energy output from wind turbines is improved when situated nearer the coast, i.e. within 2-5 miles.

David Mapley,
CEO, City Windmills Holdings PLC
www.city-windmills.com