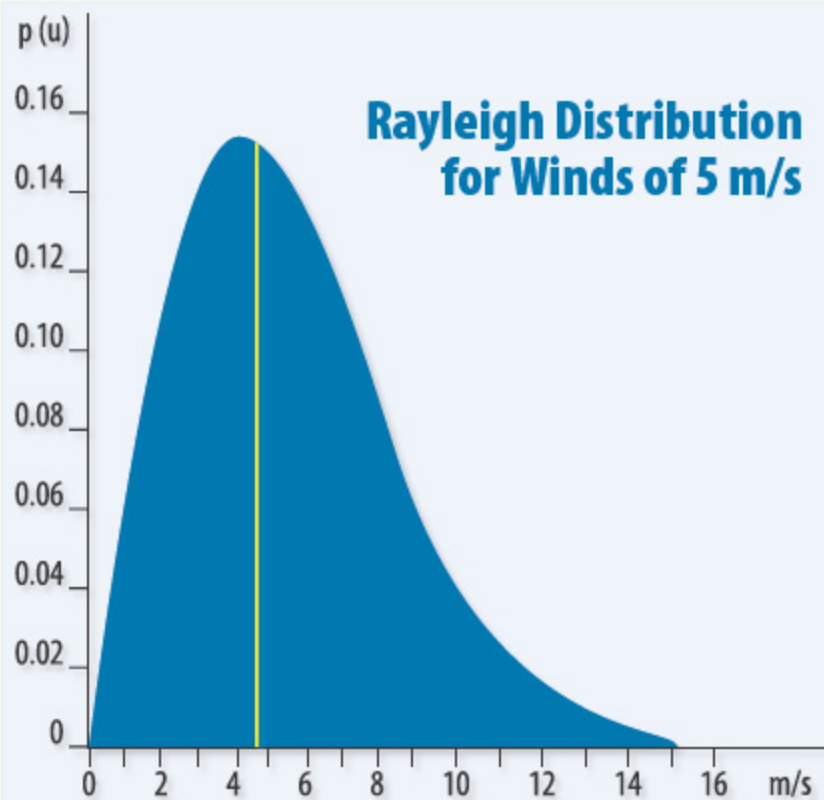**Rayleigh Distribution for Winds of 5 m/s**

Mean = 5; Median = 4.7; Shape k = 2.0

This Rayleigh distribution plot—a statistical model used by wind energy experts to estimate potential wind power at a particular site—illustrates the probable distribution of wind speeds at Hampton Bar, Va., near our test site (see chart, page 23). The plot is based on an annual average (mean) wind speed of 5 meters per second (11.18 miles per hour). Blue shaded areas represent the probability p(u) that the wind at that location will be blowing at a given wind speed (in meters per second). The vertical line indicates the median wind speed (4 meters/second). Because wind is never constant, and because wind speed can dramatically affect potential wind power, the Rayleigh distribution is more useful for site analysis than using average wind speeds alone.