



## Wind Speed Measurements

Proven Energy New Zealand has access to many meteorological sites around the country that give detailed data on wind measurement including access to NIWA wind maps.

This information gives a good indication of the general wind conditions in your area. However, localised conditions can be very different. Gaining a better idea of your wind conditions can be done in various ways to differing levels of accuracy:

Looking at relevant wind data and using local knowledge to assess if you are in a windy or sheltered spot compared to the local area. This is highly subjective and will only give a rough indication.

Using the Griggs Putnam Index of Deformity as shown below. This uses local conifer tree growth and gives a good indication of long term wind-speeds gathered over the lifetime of the trees. It is surprisingly accurate but is still somewhat subjective.

The most accurate method is to undertake a wind survey by installing an anemometer and taking readings. Ideally you would have a minimum of 1 year of data although longer would be more accurate. These would be compared to national figures to assess if the year was a standard one. To reduce time (with a subsequent loss of accuracy) three months readings could be taken and then compared with a local site. This comparison can then be extrapolated to give an annual variation from the local site.

### Griggs-Putnam Index of Deformity

Wind Speed	I	II	III	IV	V	VI	VII
km/hr	11-14	14-18	18-22	22-25	25-29	29-32	36
Knots	6-8	8-10	10-12	12-14	14-16	16-18	20
m/s	3-4	4-5	5-6	6-7	7-8	8-9	10

Proven Energy New Zealand can help with all of these methods and are happy to advise you further.

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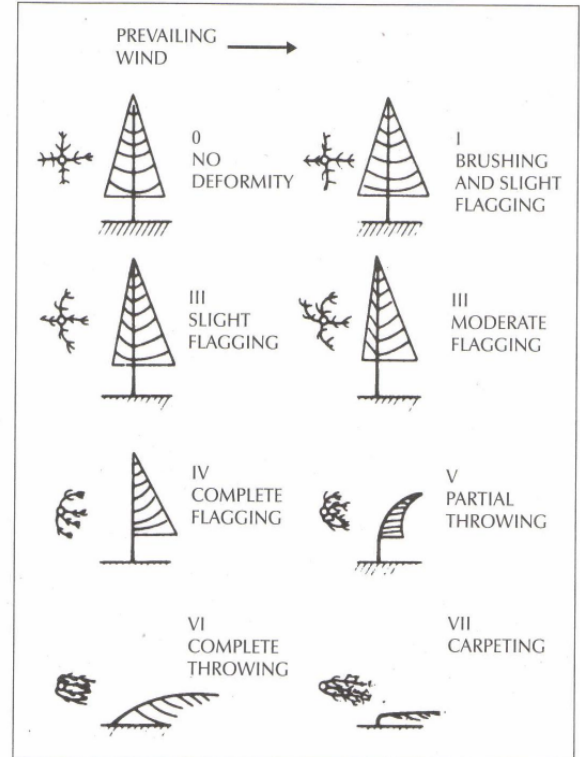


Figure 3-9. Biological indicators. The degree to which conifers have been deformed by the wind can be used as a rough gauge of average annual wind speed (see table 3-4, Griggs-Putnam Index of Deformity). (Battelle PNL)