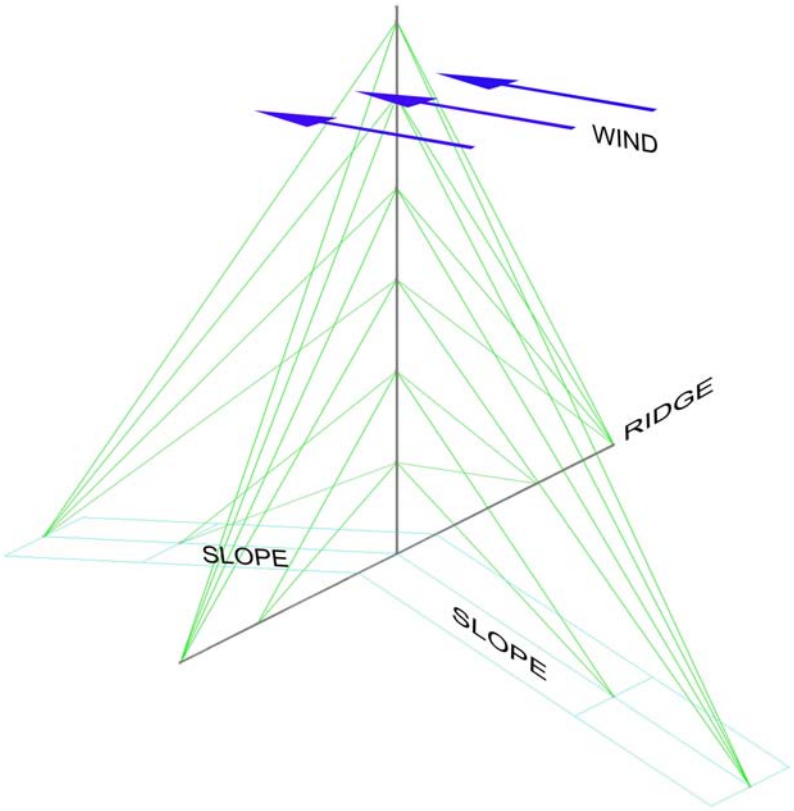
FAQSHEET11 Sloping Ground

It is quite possible, with care, to install a WindMast on sloping ground. It is of critical importance that extra care is taken ensuring that side guys do not become taut due to geometry changes as the mast is lifted. This can happen very rapidly during the very final lifting stage when the erection crew's attention is likely to be elsewhere and can easily produce loads in the mast exceeding the safe working load.

As the guys are longer on the downward slope the extra guy weight and windage, especially under icing conditions, can become significant in ensuring the mast can adequately meet site design windspeeds.

To maintain the same mast performance the angles of the guys to the mast should remain the same, but this is impossible as, at the severest slope simulated (15 degrees), the inner guy anchor would have to be outside the outer guy anchor!



To obtain good performance it is necessary to adjust the guy radius and the new increased side anchor radii are shown as radii measured along the ground (i.e. down the slope), as in practice that is the measurement that would be required 'in the field'.

The results of the analysis are summarised for the nexgen 50m, nexgen 60m and the nexgen 70m masts. In all cases the standard level ground mast performance is compared to the mast installed with a 15 degree downward slope on each side.

For masts installed on ground sloping less than 15 degrees then installing anchors on a pro-rata radius will give approximately pro-rata performance.

Two drawings of each mast are shown, the first showing the general arrangement of the mast with standard guys (dotted blue in the drawing) and the new guys (solid green in the drawing).

In addition a simplified drawing of the mast with new side guys is shown with the actual lengths of the new guys from mast to anchor. The graph shows the mast performance envelope of mast performance for the standard and the sloping ground installation

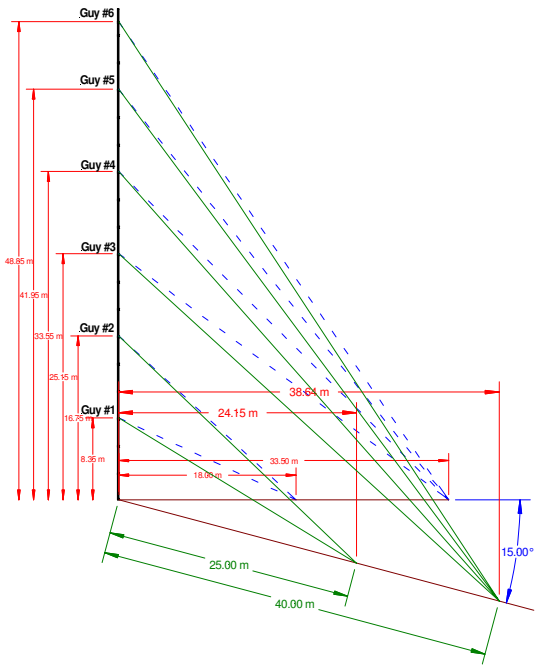
Tabulated results with guy and anchor loadings for the 50m, 60m and 70m masts on a 15 degree slope are available free on request. Masts can be analysed for specific terrain conditions for a nominal charge.

If found necessary guy wires can be extended by utilising a minimum of 5 cable grips to attach the extension. The preferred method is to fit a thimble to the ends of the guy and extension and then shackle these together.

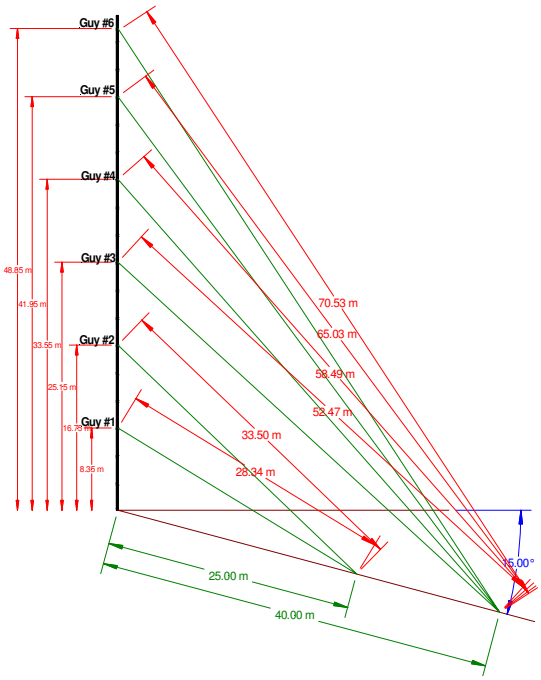
Tel: +44 (0) 1453 759 408 Fax: +44 (0) 1453 759 416 E-mail: info@nexgenwind.com Website: www.nexgenwind.com
Axiom House, Station Road, Stroud, Gloucestershire GL5 3AP United Kingdom

FAQSHEET11 50m Sloping Ground

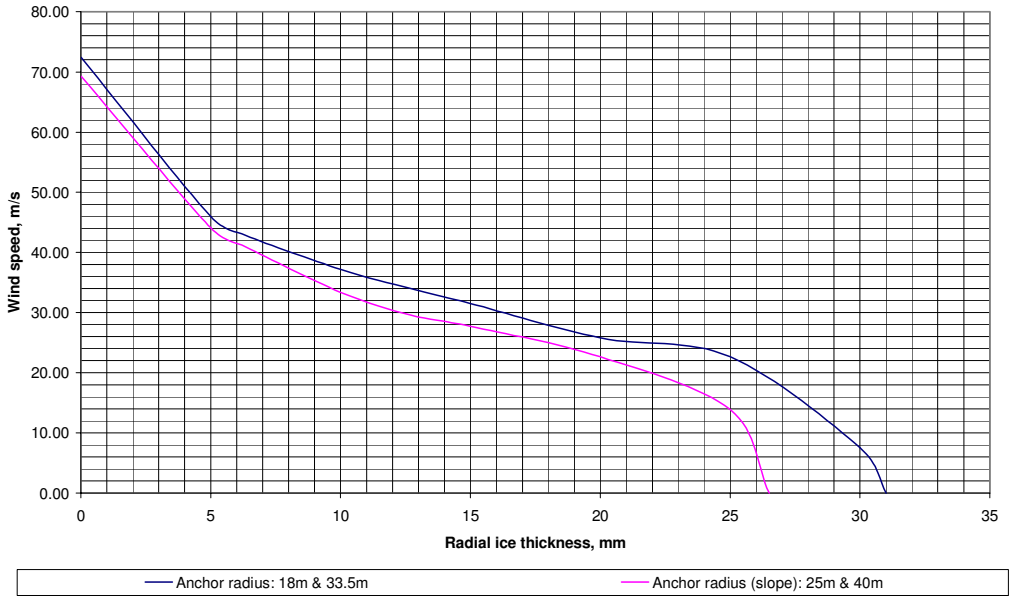
nexgen 50m WindMast
Anchor radii: 18m and 33.5m - standard



nexgen 50m WindMast
Anchor radii: 18m and 33.5m - standard



nexgen 50m mast
15 degree slope installation
Maximum allowable wind speed versus radial ice thickness



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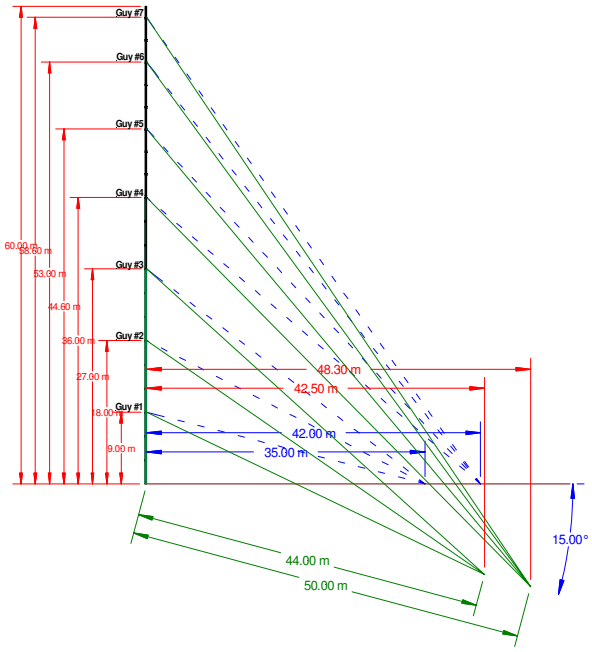
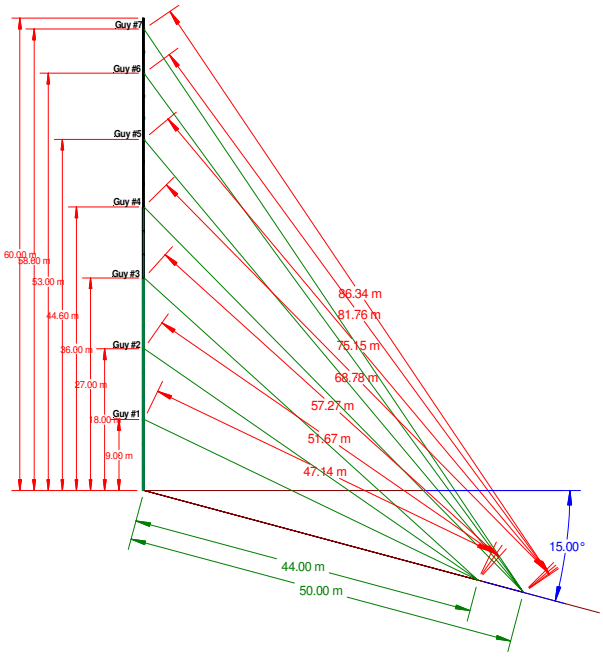
Axiom House, Station Road, Stroud, Gloucestershire GL5 3AP United Kingdom
Western Windpower Ltd, Registered in Cardiff No. 3043153

FAQSHEET11 60m Sloping Ground

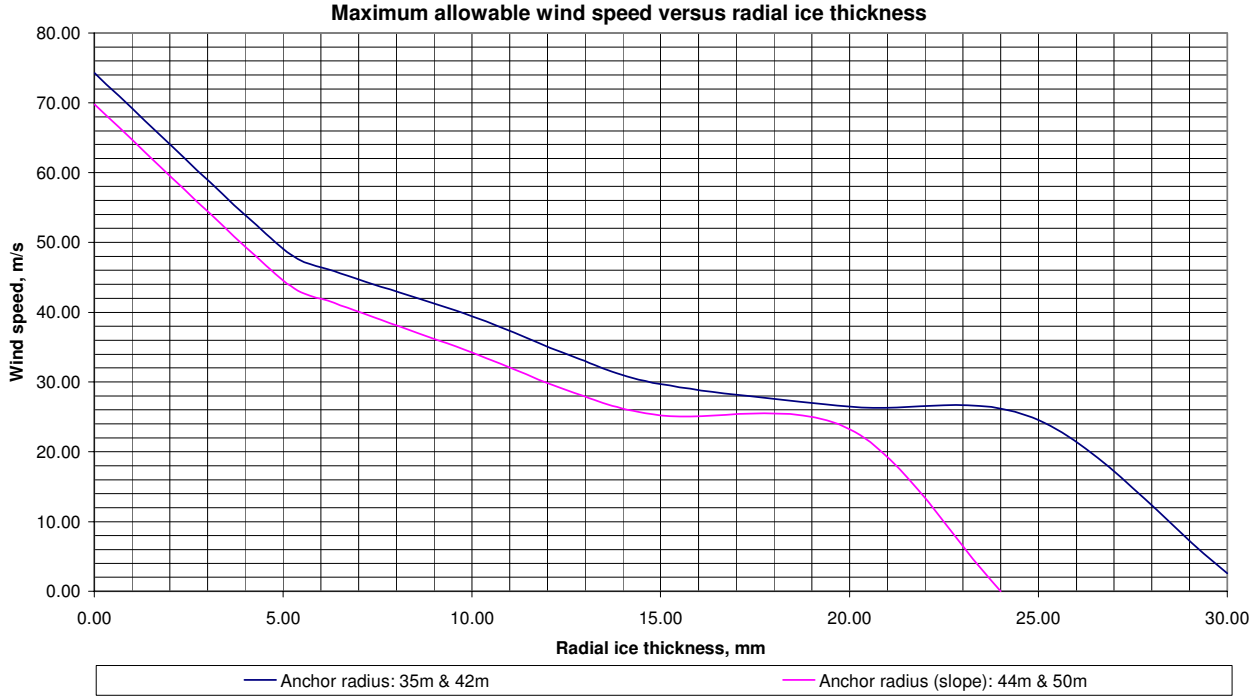
nexgen 60m WindMast
Anchor radii: 35m and 42m - standard



nexgen 60m WindMast
Anchor radii: 35m and 42m - standard



nexgen 60m mast
15 degree slope installation
Maximum allowable wind speed versus radial ice thickness



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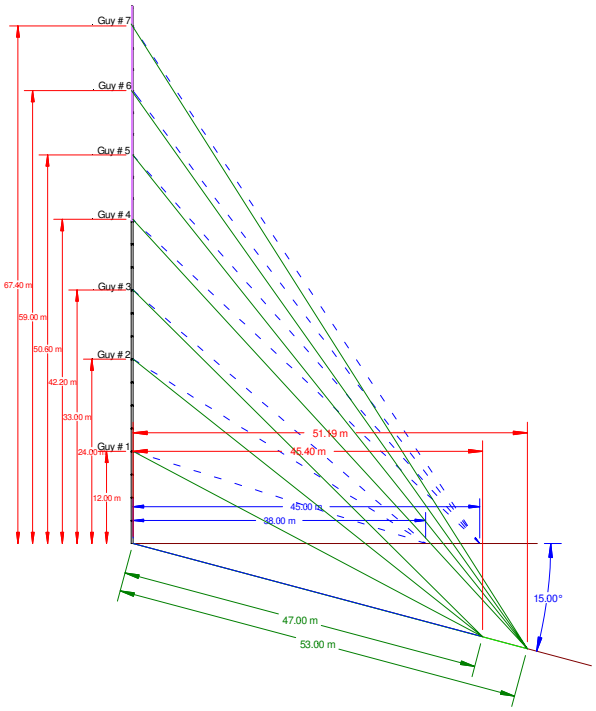
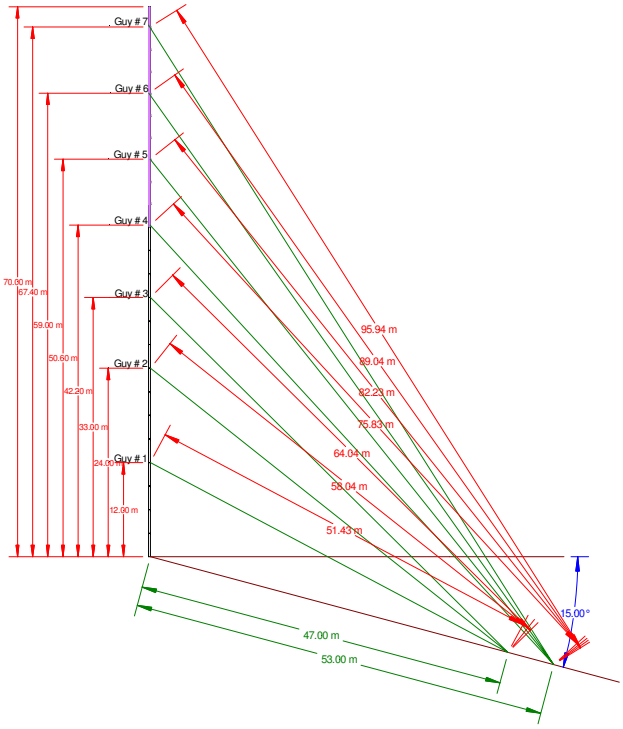
FAQSHEET11 70m Sloping Ground

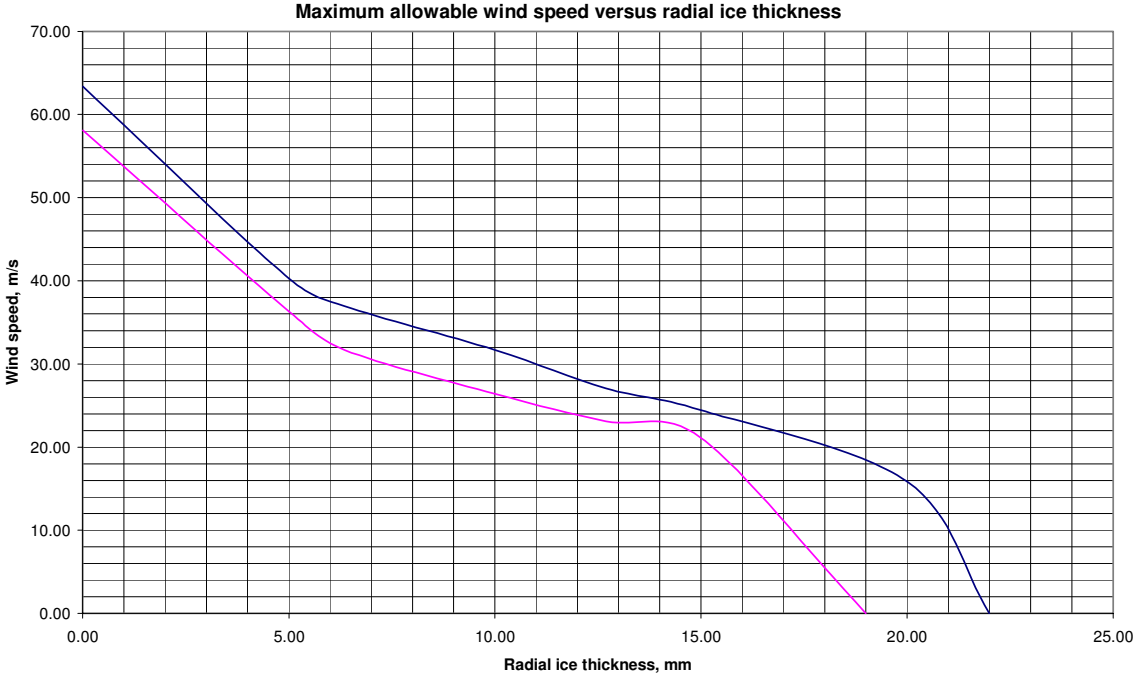
nexgen 70m WindMast
Anchor radii: 38m and 45m - standard



nexgen 70m WindMast
Anchor radii: 38m and 45m - standard



nexgen 70m mast
15 degree slope installation
Maximum allowable wind speed versus radial ice thickness



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