12v wind turbine camping

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CAMPING - POWER & LIGHTING

Commercial solar and wind "farms" are familiar sights around the world and mini-solar, such as we have on the roofs of camper trailers and caravans, or pegged out in the sun beside a shaded camp, are also quite familiar. But we don"t see small-scale wind turbines being used very much.

That may seem odd, given that many cruising yachts have a combination of wind and solar power. Why not a campsite turbine, to complement solar panels, you may well ask.

There are some very good reasons why wind power doesn"t make it in the camping world, but the most significant are the output characteristics of wind turbines; the average wind speed around Australia and the "ground effect" on wind turbines.

The average wind speed around Australia has been recorded since 1893 and sits between 12km/h and 18km/h.

Sure, there are storms that see wind strong enough to blow a dog off a chain, or the oysters off the rocks, but the average national wind speed is relatively low. Even worse, from a wind energy point of view, that wind strength is reduced by the very things we look for when camping: trees.

Ground-based obstacles reduce wind speed and change its direction erratically. It"s not a problem on a cruising yacht that"s floating on an unobstructed sea, but is a big problem for shade-loving campers.

Commercial wind generators aren"t made that huge size and height for fun: they need to be tall, to operate in unobstructed, higher-speed air flow and they need big blades, with huge swept areas, to maximise the effect of relatively low wind strength.

That"s bad enough, but it gets worse, when you consider the nature of a wind turbine. Although not needing anything like turbocharger speed – yes, a turbocharger is a turbine – a wind turbine still needs to spin to at least 1000rpm, to generate electricity.

The typical giant commercial wind turbines we see dotted around the landscape rotate only five to 15 times each minute and are fitted with gearboxes to raise that input speed to suit their generators.

Typical small wind generators, of say 250-500-watt rating and with one-metre-diameter blades, may seem like a great addition to anyone"s camping-power kit, but the devil is in the detail.

Check out the specifications and you"ll see that 250-500W rating relies on 50km/h wind speed. Wind speed is

often "hidden" in wind turbine specifications as metres per second (m/s) and the simple conversion is to multiply that figure by 3.6 to discover the km/h speed.

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