

Minutes of A.S.T.R.O. Meeting  
held Friday September 11, 2009 at 8:00 p.m.  
Clarence Gardens Community Centre.

- CHAIRPERSON** Chairperson Bob welcomed all present.
- This meeting to be followed by AGM
- IAN** Wind turbines – How they work Water wheel – if no load water travels at same speed as water. With load there is torque but less speed – need mass flow to obtain power. Reynolds number  $RE = 69,000VL$  (width of blade). Air is “sticky”. Tip speed ratio / practical windmill designs. Power in the wind – power =  $\frac{1}{2} 1.225 \times V^3 \times \text{Area}$ . Betts Limit = 59% efficiency of windmills – Large 59%, Small 40%. Smaller blade length = less efficient. Program – “Wind Turbine Blade Design” - Wind turbine blade that has been ‘tweaked’. Blade thickness is 9% of its width. Effect of shroud around windmill = enormous wind load in case of hurricane. Question – Is aeroplane propeller more efficient than wind turbine? Answer – wind turbine is not acting as a propeller – acts more like a glider in a turn. Vertical turbine has some disadvantages – cannot self start / stop. Savanius rotor is  $\frac{1}{2}$  as efficient as windmill shape. Running DC instead of AC will present other opportunities - most of the work (research data) done on low velocity windmills.
- PETER** Low frequency noise around 18 hertz shown to cause health problems. Blackhawk helicopters can switch to ‘silent’ mode.
- FROM THE FLOOR** German brand of wind generator has a ‘feather’ to achieve silent running. Epoxy-laminated wood should be transparent to radio signals / fan with zigzag tip ‘feather-like’ (serrated tip). Whale flipper is serrated.
- ANDREW** Refraction through glass from Romulus to star shape
- ROGER (visitor)** Device to save 47% on power bills – power has spikes when delivered – device rounds off spikes. Price at show \$99.95 - details – [info@inov8.net.au](mailto:info@inov8.net.au)
- FROM THE FLOOR** Tetrapods – successfully used by Japan to remediate oil spills
- GEORGE** Supervolcanoes – free lectures – follow up in late Sept. Sustainable house day 10am – 4 pm.
- MATTHEW** Petty spurge for Bell’s Carcinoma
- CHARLIE** 10 watt vertical turbine driven by fan
- MICHAEL** DVDs– Extraordinary Technology Conference / Rodin Coils / Paul Bentone – Geet enthusiast / Forum – [energeticforum.com](http://energeticforum.com)
- SAM** Renewable energy technology – save up to 30% off your bills – energy audit assessment Encompass Technology – [mifren@gmail.com](mailto:mifren@gmail.com)
- MEETING CLOSE** ANNUAL GENERAL MEETING TO FOLLOW