



Victorian Small Wind Industry Roundtable 27th April 2010



Programme

15:00pm : Welcome and Registration

15:10pm : Demian Natakhan "Introduction & Consumer Guide"

15:35pm : Jonathon Carle: Small Wind Planning in NSW

16:00pm : Richard Johnston "Issues for the industry"

16:25pm : Open floor discussion

17:00pm : Refreshments and networking

17:30pm : Close



Victorian Consumer Guide to Small Wind Generation

Who it is for:

Consumers considering purchasing an inverter-connected wind turbine <100kW, in Victoria

- Focus on grid connected systems
 - Off-grid consumers are referred to existing ATA guide for guidance on issues such as sizing battery storage
- Predominantly, ground mounted turbines in 1-10kW range in rural/open locations
 - Shorter mention of roof-mounted or urban sites
- Predominantly, horizontal axis turbines
 - Shorter treatment of vertical axis for specialist applications
- Readers without technical know-how, no prior knowledge



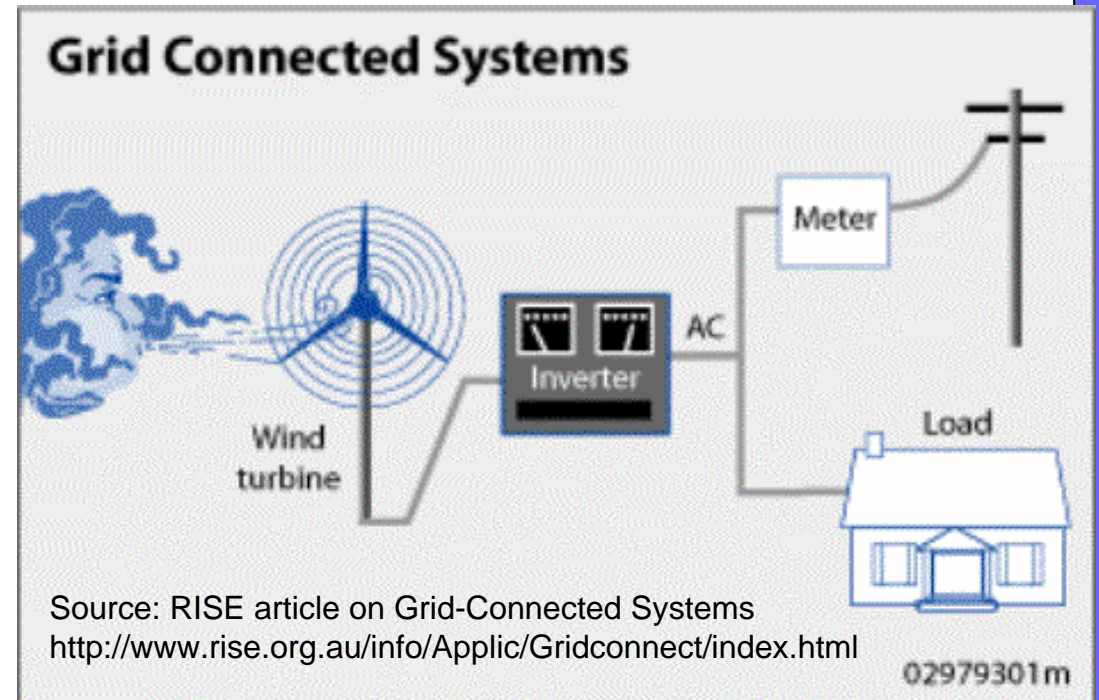
Victorian Consumer Guide to Small Wind Generation

Chapters:

- Introduction
 - Frequently Asked Questions relating to ‘will it be viable?’
- Assessing your site
 - Resource estimating, wind monitoring
- Choosing a Turbine
- Planning permission
- Installation, finding an installer
- Case Studies
- References and Glossary
- Appendix A: Your Wind Turbine Project Checklist
- Appendix B: List of Small wind turbine suppliers and installers

Introduction

- Definitions,
 - principles, system overview
- Frequently asked questions
 - Is my site suitable?
 - How do I choose a turbine?
 - How much energy will I generate?
 - What is the likely payback period?
 - What funding is available in Victoria?
 - Do I need planning permission and how do I get permission?
 - How do I sell my generated electricity?





Assessing your site

- Estimating your resource
 - online sources, local indications
 - Probably sufficient for very high resource sites
- Wind monitoring: for marginal and low resource sites



NRG anemometer and vane



Davis Instruments
anemometer and wind vane
product code 7911



APRS anemometer and vane



Assessing your site

- Wind monitoring: Case Study



Mr Marquardt set up his own anemometer on a 5m mast for 18 months



Assessing your site

Noise and Proximity to Neighbours

- Refer to NSW draft planning guidelines



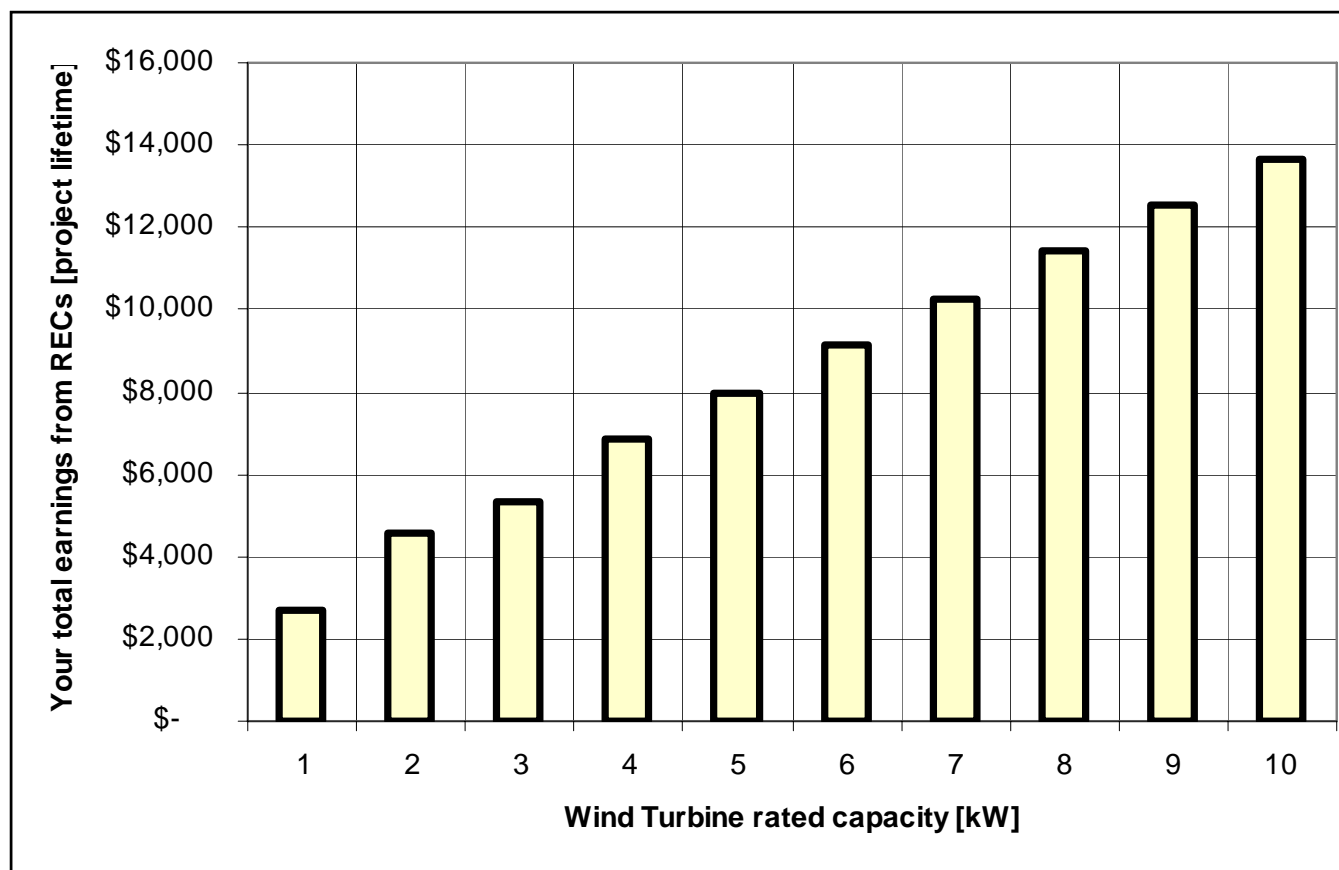
Choosing a Turbine

- Estimating your demand, how much you want to meet
- Choosing a turbine size
- Estimating your turbine energy production
- Choosing a turbine model
 - Australian and International Standards for wind turbines
- Choosing a Tower
 - Tower type, tower height (see Installation Chapter)
- Choosing an inverter
 - If turbine comes with recommended inverter, take it, if a choice is available, criteria include...?
- Your budget
 - Costs including installation (cont...)



Choosing a Turbine – Financial viability

Income : How much 'rebate' do I get?



- What are REC prices? (\$40 assumed in chart),
- How can I improve on standard 'resource availability' 2000hrs/yr?



Choosing a Turbine – Financial viability

\$ income : Feed-in Tariff?

- Premium not available for wind in Vic (yet)
- How to lobby for Premium tariff for wind

\$ Income : Green Loans?

\$ Solar vs Wind – examples of cost & returns



Planning Permission

- General assumption: it's best to ask Council
- What information to provide to determine if you need a permit (checklist)
- What to do if you need a permit
 - Arguments to use against application of wind farm planning criteria
- Port Phillip guidelines example

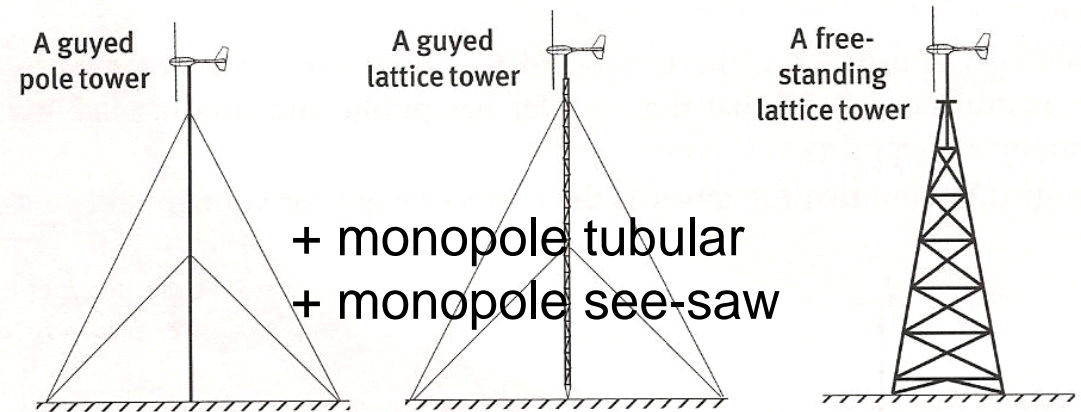


URBAN WIND TURBINES
A General Guide for Residents and Industry

- Reference: NSW draft guidelines

Installation

- Finding an installer
- Micro-siting – choosing your turbine location
- Mounting – tower types



- Grid connection
 - Approved inverter; essential Australian Standards
 - Bidirectional meter
 - Signed agreement
 - Approved electrician
- Monitoring and metering
- Accreditation of small wind installers – not as formal as for solar PV ... yet



Case Studies



5kW Westwind, Sugarloaf



3kW Ropatec
VAWT, Geelong



20kW off grid,
Blampied



? 60kW Westwind, Breamlea
(anyone got links to the owners to
request the data?)



Further reading and references for Victorian consumers

- ATA publications
- Small wind guides on AWEA website
- ORER small generators guide



Appendix A: Your Wind Project Checklist

Example
of format

INSTALLATION CHECKLIST

- Wind resource suitable
 - Wind turbine location optimised
 - Suitable wind turbine chosen
 - Turbine hub height appropriately selected
 - Tower is suitable and AS1170.2 compliant
 - Tower is securely mounted on appropriately chosen and competently installed footings
 - Guy wires are easily visible and adequately anchored and protected to 2m.
 - Appropriate fastenings have been used
 - Ease of maintenance has been considered
 - Lightning protection device(s) installed
 - Cabling is suitable and appropriately protected from UV and mechanical damage
 - WECS regulator is suitably rated and does not interact with other regulators
 - System is properly configured
 - Polarities are correct
 - Wiring is protected by appropriate circuit breakers or fuses
 - Noise levels are acceptable
 - Turbine braking / locking devices operational
 - Operation & Maintenance Manuals supplied
 - Painting, rust-proofing and greasing is complete
- BATTERY INSTALLATION**
- Battery installation complies with the requirements of AS 4086

Australian
Business Council
for Sustainable
Energy

SAFETY

- Installation complies with AS/NZS 3000
- Safety signage complies with the requirements of AS 4509
- Other safety apparatus outlined in these guidelines has been supplied

EXTRA LOW VOLTAGE CABLING

- Cabling is sized to minimise losses in accordance with these guidelines
- All sub-circuits are protected by appropriate fuses or circuit breakers
- All links and joiners are appropriately sized and multi-strand cable is correctly terminated.

240 VOLT (LV) INSTALLATION

- All Low Voltage wiring has been installed by a qualified electrical tradesperson
- SPS Inspection checklist has been completed

AUTHORISATION :

I,
 BCSE Accreditation number
 verify that the following system has been installed to the standard indicated by these guidelines and complies with the relevant Australian Standards.

Name of the person for whom the system was installed

System location.....

Signed.....

Date : / / .



Appendix B: List of small wind turbine suppliers

- Wind turbine retailers in Victoria
- Wind turbine installers in Victoria



Next steps for The Guide

- Taking on board your comments, within the forms you are filling out today
- Enhar to supply draft of full document to SV for comment
- Final version in early May
- www.enhar.com.au for documents and updates

THANK YOU