



RENEWABLE ENERGY
SOLUTIONS AUSTRALIA HOLDINGS LTD.



eco whisper
turbines



Eco Whisper Turbine 20kw

Silent, Sustainable, Superior Wind Technology



**The silent
alternative**

Lyn George
Corporate Manager
Austeng

Eco Whisper Turbine 20kw

- Revolutionising the renewable energy market in Australia
 - Silent
 - Efficient
 - Australian made inverter & generator
 - Small footprint
 - Aesthetic appeal
 - Environmentally friendly
 - Manufactured in Geelong



How is it Silent?

Outer cowling/ring prevents air from 'spilling' off the tip of the blades



Think about the common desk fan. As speed increases so does noise

Common 3 blade small wind turbine design



What makes it so efficient?

- Key areas:
- No turn away losses – Slew drive control
- Designed to operate in 220Kph winds
- Lower start up speed, generating more power from common wind speeds
- Lightweight – Aluminium blades and hub
- Highly efficient generator and inverter – Both have ratings above ~96% efficiency
- Suitable for turbulent flows



Low Maintenance Costs

- Hinged pole design
- Easy to erect without highly skilled labour
- Easy to pull down for maintenance and extreme weather events
- Scheduled servicing every 24 months
- Turbine is designed for 25 year life span
- Transportable with standard transport system



Environmentally Friendly

- Solid turbine structure
- Generates endless renewable energy
- Reduction in Co2 emissions
- Easy for birdlife to see the turbine
- Recyclable materials – Over 90% of the turbine is recyclable
- Small environmental footprint



Application?

- Remote communities – Community ownership model
- Rural sites
- Remote sites – Diesel replacement
- Hybrid Systems
- Council sites
- Schools + Universities
- Industrial zones
- Sustainability parks
- Commercial zones
- Manufacturing zones



Economic Benefits

- Endless renewable energy
- Can generate up to 45,000 + Kwh per annum
- About \$147,000 fully installed
- Pay back period – Dependent on:
 - Level of wind
 - Exporting energy to grid or offsetting
 - Feed in tariff that applies
- Estimate 5 – 7 years
 - Design for 25+ year lifespan



Simple Environmental Opportunity

- Austeng found a financial benefit in installing the Eco-Whisper Turbine (in addition to intangible benefits)
- We believe other Geelong companies may discover similar benefits
- First step is to conduct a “Wind Survey” and feasibility study undertaken by Enhar a company specializing in this area ≈ approximate investment \$2,000.

Austeng at a glance....

- Core business is ENGINEERING SOLUTIONS
- Family Business
- Turnover of \$7.5 million
- 31 employees
 - 5 engineers
 - 2 draftsmen
 - 21 tradesmen
- In business over 25 years



Austeng

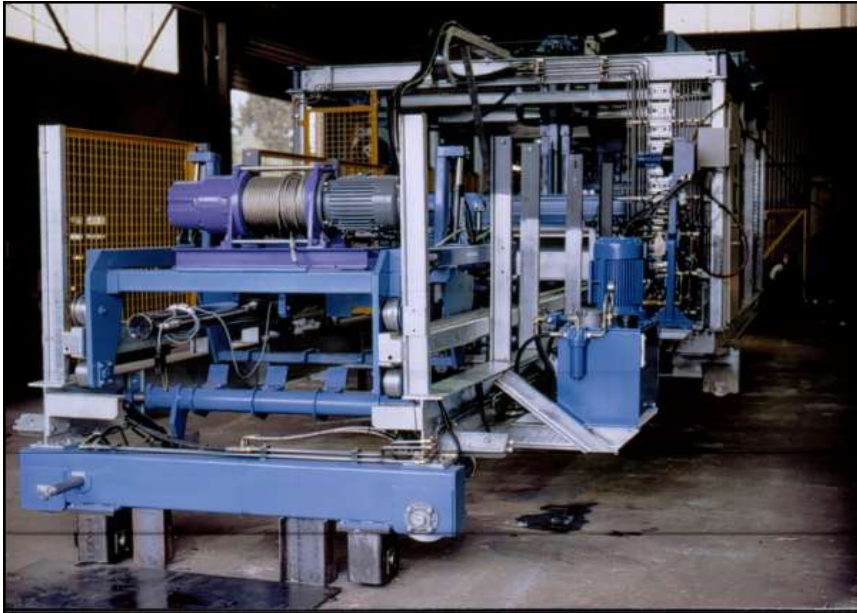
- Offers “one stop” solution to its clients
- Complete service from design through to manufacture, installation and commissioning



- Inducted into Victorian Manufacturing Hall of Fame 2009

Austeng

- Wide client base & diversity of work



Austrak Saw



**Catalyst Cooler
Removal Unit**

Some examples



Foamer – used to deliver pre-cast latex to adhere tufted yarn to the backing media. The latex is foamed with air to reduce the volume of latex required so as to reduce cost



Tile Stacker – automatic conveyor system with robot to prevent manual handling issues and fingerprints

Austeng involvement with Eco-Whisper Wind Turbine

- Initial referral from ICN
 - Reputation as innovative, flexible & multi-skilled
- **1st Stage**
- Part of multi-disciplinary Team “brainstorming” ideas. Experts covering:-
 - Generator development and supply
 - Engineering/design/certification
 - Power inverter and grid connection
 - Manufacture
 - Foundations and engineering
 - Installation and erection
 - Sales & marketing
- **2nd Stage**
 - Manufacture first production prototype
- **3rd Stage**
 - Testing & certification (where we are now)



Austeng's Involvement - Background



- Austeng Commitment
- First Production Turbine purchased by Austeng – installed at our premises as a support to our customer & show of confidence in the product
 - Allows testing, modifications & improvements
 - Show piece
 - Assist own efforts in becoming more sustainable
- Gearing up for long-term production (over \$1 million spent on development to date)

Austeng Involvement – Opportunities

- Increased Public awareness of environmental issues
 - Growing Market for “green” products
 - Companies recognizing they need to be responsible environmental corporate citizens
- Timing of Launch is well placed given:-
 - Federal Government Carbon Tax
 - \$10 Billion to be spend on Renewable Energy Projects

Opportunities for Geelong

Opportunity to position itself to become “green” clean tech centre given current advantages

- Good infrastructive
 - Well educated & skilled workforce
 - Range of manufacturing companies in close proximity
 - Good wind, solar, tidal & wave assets
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- City of Greater Geelong supportive and in line with Future Proofing Geelong initiative. (also involves Geelong Manufacturing Council, Chamber of Commerce, Committee of Geelong & Deakin Uni)
 - Encourage innovation, retention of existing skills and development of “green” skills.

Possible Long Term Involvement for Geelong Companies

- Large scale production
 - Projected hundreds per year (too much for Austeng's capacity)
- Longer term may well go overseas but hope to
 - Retain more complex components
 - Involvement in distribution & logistics
- Selling benefits to RESA of local manufacture
 - Quality assurance
 - Easier Logistics
 - Invoiced on delivery/cash flow
 - Attract Government Funds
 - Close to market
 - Just in time deliveries
 - Service Support
- In longer term if sales volumes grow looking to sit down with Geelong companies to put in a bid to retain work here in Geelong

Case Study for Co-Operation

- Approach by Austrak Ltd to refurbish & build concrete sleeper manufacturing equipment for export to UAE (Alternative source if supply was from China or widely spread Australian companies)
 - Unable to do in isolation given skill sets required.
- Individual companies put together a group with the following:
 - Hi-Tech Electrical Services – electrical
 - Berendsens – hydraulic Co
 - Robert Lange Engineering
 - Austeng
- This co-operative model
 - Minimised commercial risk for client
 - Quality assurance
 - Case of co-operation given local proximity
 - Reduced clients administration burden in a very busy period
 - Eliminated engineering risk
 - Peace of mind

Case Study for Co-Operation.....

- Positive outcome
 - Approximately \$800,000 of work brought into Geelong
- Can provide template for future – possibly RESA

Casting Machine



- Pours concrete sleepers, levels off & vibrates

Diamond Saw



- Cuts sleepers & flips around, then stacks

De-moulder



- Pulls moulds from concrete
- Sleepers ready to be pulled through & cut by saw



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