SUBMISSION TO INDEPENDENT PLANNING COMMISSION NSW IPCN

September 1, 2026

OBJECTION TO BULLAWAH WIND FARM WSSD-50505215 NEAR HAY

QUANTIFIABLE SCIENTIFIC EVIDENCE ON INFRASOUND AND ECOLOGICAL RISK FROM DOWNSTREAM WAKE TURBULENCE, DRYING THE LANDSCAPE, REDUCING PRODUCTIVITY AND INCREASING BUSHFIRE RISK

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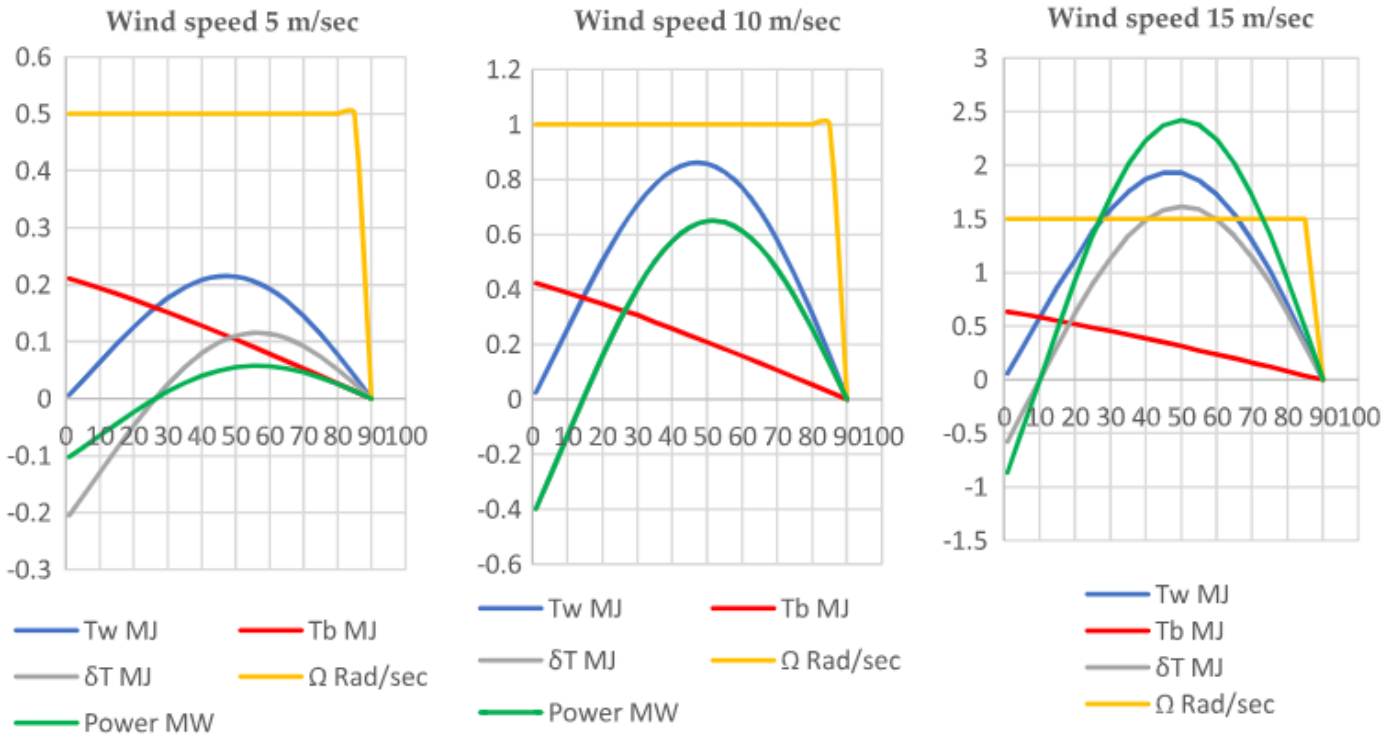
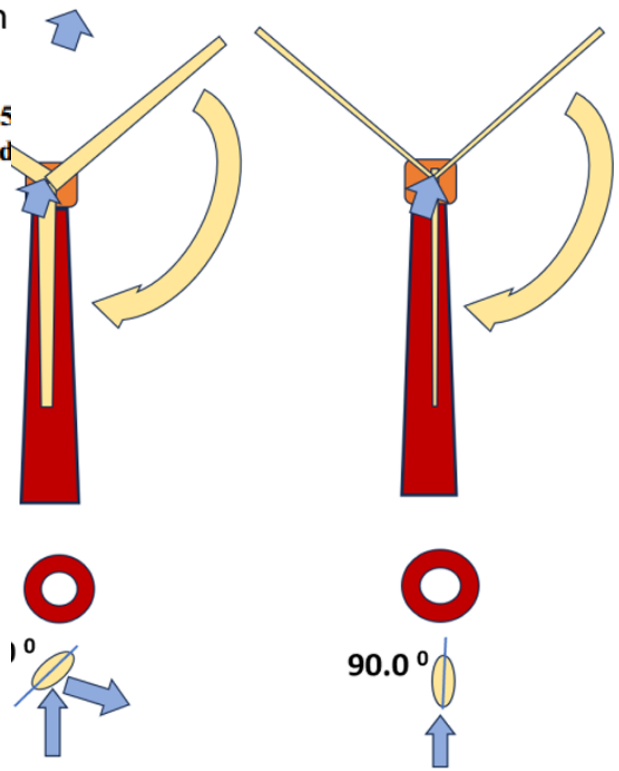
Environmental risk and management

OUR RISK RESEARCH: ESTIMATED INFRASOUND & MEASURED WAKE TURBULENCE

Figure 7

Radial action plots of power output at differing wind speeds and angle of incidence ($\theta = 1$–$85°$). Program conditions were density 1.225 kg/m^3, total blade area 140 m^2; blade length, 80 m; tip speed ratio $\lambda = 8$; twist from 0 pitch at tip to θ from 90-θ. δT at 10 m/s is obscured because the angular velocity is 1.0





5° or 35° and feathered at 90°. Note the interactive
is greatest at low pitch angles.

cie, J.W. (2023a) Estimating maximum power from wind turbines with a simple Newtonian approach. *Archives Advanced Engineering Science* 1, 38-54. https://doi.org/10.47852/bonviewAAES32021330.

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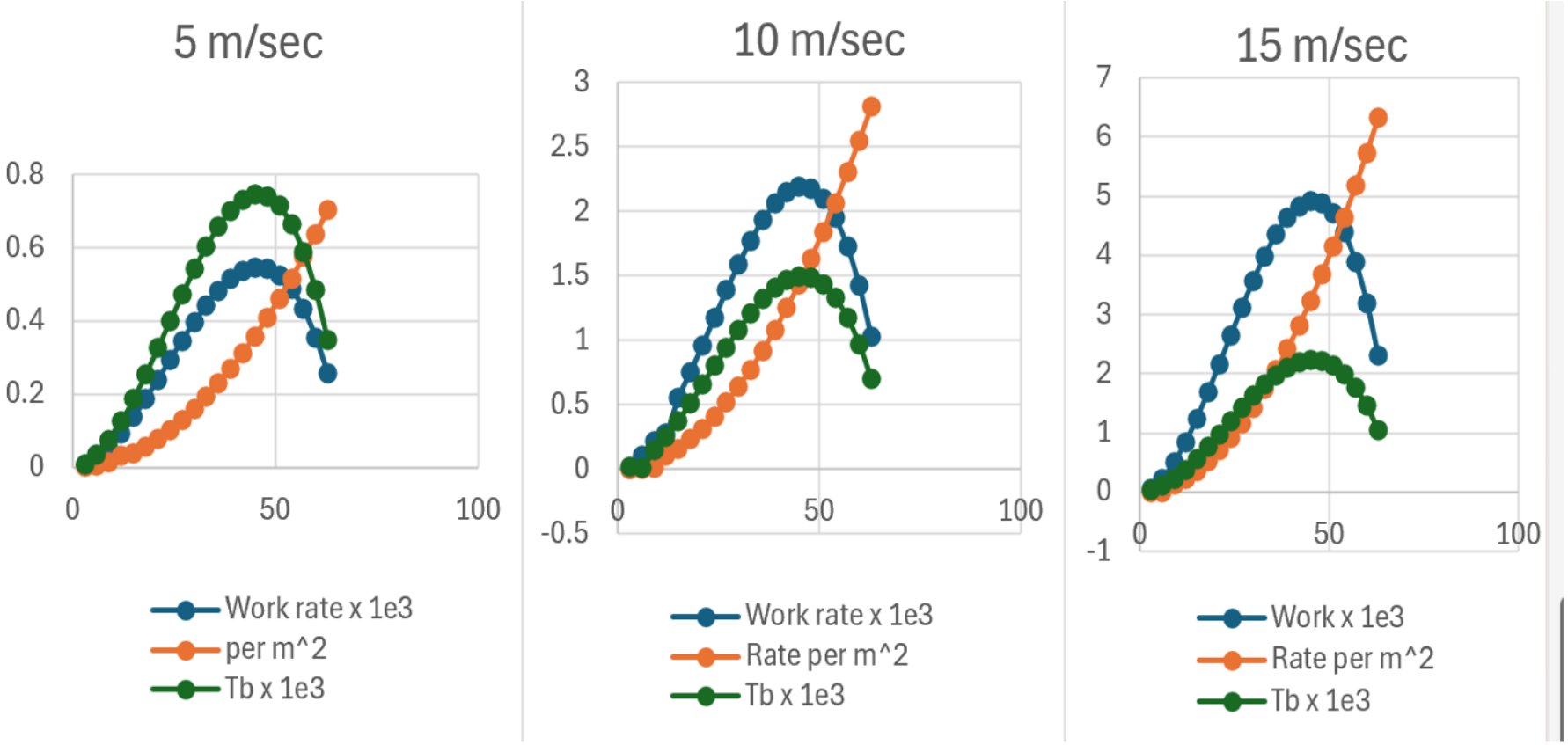
Well cited paper by Kennedy et al., 2023

Reverse infrasound power varies with blade length (63 m Vestas)



Bullawah Turbines

Up to 280 m high

Blades ca 80 m

Figure 4. Work rate and intensity on blade surface with length. Back torque (Tb) is proportional to wind speed but reduced by turbine rotational velocity (radians/sec).

Quantifiable Scientific Evidence on Infrasound and Ecological Risk from Downstream Wake Turbulence, Drying the Landscape, Reducing Productivity and Increasing Bushfire Risk

Kennedy, AN Crossan, Runcie, JW, Hodzic M. In preparation for 2026

Interaction of turbine blade tip impulses with wind towers causes infrasound

Wind turbine

Lift for blade = $A\rho\sin\theta\sin2\theta v^2 = M\sin2\theta v/\text{sec}$

Wind torque = $\int_0 C\sin\theta\sin2\theta v^2 RdR = \int M\sin2\theta v RdR$

https://doi.org/10.1016/j.tplants.2023.03.003; and see https://doi.org/10.1186/s12993-023-00226-7)

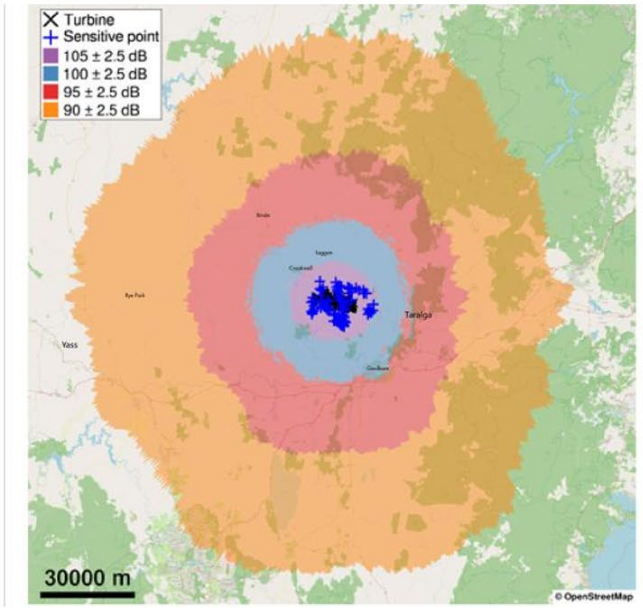


Figure 5. Decibel ratings with distance for wind turbines near Crookwell, conducted informally by Ken Mattsson et al. (2026) and Cheryl O'Donnell. The graph shows potential dB contours to Goulburn.

Figure 2. Radial action theory estimates maximum power in horizontal turbines (Kennedy et al., 2023) as the difference between a wind torque (T_W) and a balancing back torques exerted on the rear of the blades from the resistance of air molecules (T_B) and the electrical generator, housed centrally. Air jets of variable speed from the rear of the blades intensify as the blade tip descends towards the wind tower.

Infrasound is inaudible pulses of pressure with uency less than 20 Hz. It travels at sound d (343 m/sec) in air and is only absorbed esonant structures ca. 5-25 m cross section ching wavelength, travelling much further audible noise inversely proportional to uency squared. Current testing of pressure es (dB) neglects this important impact.

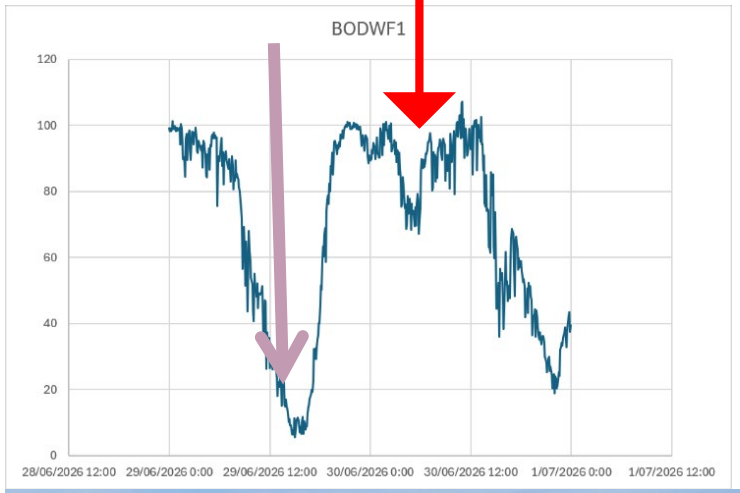
Frequency (Hz) x Wavelength

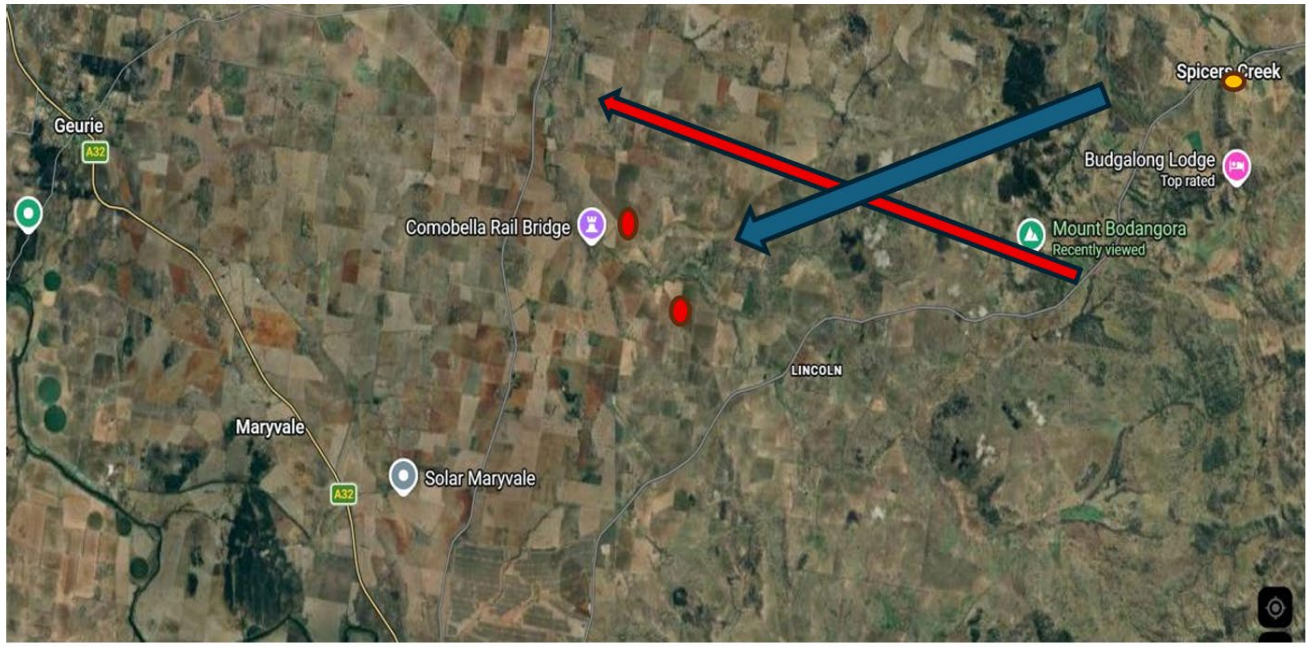
We are continuing this research on secondary effects of infrasound in resonant chambers, using tubes of variable length

Mattsson, Ken, Eriksson, Gustav, Persson, Leif, Chilo, José, Tatar, Kourosh (2026) Efficient finite difference modeling of infrasound propagation in realistic 3D domains: Validation with wind turbine measurements Applied Acoustics 243, 111156. https://doi.org/10.1016/j.apacoust.2025.111156 cited in Preprint

Evidence for drying landscapes: Turbulent wake data at Bodangora, NSW

Afternoon curtailment by feathering





ure 3. This illustration indicates the regional location of the Bodangora wind power station, using same colour coding as in Fig. 2 for upwind and wake sampling sites. The predominant wind ection during the June 30 sampling is shown in blue with the red arrow indicating the approximate s of the wind power facility.

Bodangora Wind Power Station: Risk Research Analysis with Video

June 30, 2026:

8.03 am Wake1 8.37 am Upstream 9.20 am Wake 2

On June 30, our hub-height sampling was made ca. 3 km downwind as Wake1 at 8.03 am (https://youtu.be/LM9Qkj7vJ4Y), Upstream 10 km, two km before the turbines at 8.37 am (https://youtu.be/ePiEl8snkyY) and then Wake2 at 8.59 am (https://youtu.be/mJJhUGaWmg8), confirming that wind conditions had not changed. Power output was near 90 MW for all three readings as downloaded separately. Producing nearly 100 MW of electricity, both air pressure and temperature at Wake 1 and wake 2 were increased compared to Upstream; the latter were 1-2 degrees centigrade warmer as predicted in our well-cited publication of 2023 (https://doi.org/10.47852/bonviewAAES32021330). In future, we will sample at 10, 15 and 20 km in the wake direction as well as measure evaporation rates at the plant surfaces or soils when moistened, using the Kestrel Professional 520.

To see YouTubes showing grass and Trees affected by drying turbulence, click on https://you.tube links, select Theater Mode on RHS. and once viewed, click on RHS Top X. to return to presentation.

In CSIRO's 2003 report indicated that wake effects persisted for 10 blade lengths only.

We were at 60 x 50 m blades or 3000 m

YouTube DJI Air 2 Videos give visual proof of Wake Turbulence

Kennedy IR, Runcie, J and Crossan, AN, 2026) entitled *Quantifiable risks of losses to food productivity and more intense bushfires from landscape drying caused by turbulent wind farm wakes.*

Table 1. Weather measurements using Kestrel Professional 5200 Link

Jun-30	Temperature	Wet Bulb T	Rel. Humidity	Barometric P	Altitude	Heat Index	Dew Poir
Wake 1	12.13984	10. 4061	81.3626	979.9671	451.9878	11.98293	9.02804
Upstream	11.20132	10.13947	88.19737	966.5158	567.1447	11.25395	9.30394
Wake 2	13.23762	11.24554	79.53069	974.1386	501.5248	12.9802	9.77623

	Hum. Ratio	Rel. Air De	Evap. Rate	Wind Chill	Delta T	Air Density
Wake 1	7.436179	96.65122	0.18126	11.74593	1.72561	1.18413
Upstream	7.681184	95.625	0.389079	9.482895	1.059211	1.171513
Wake 2	8	95.67872	0.587129	11.2297	1.993069	1.172267

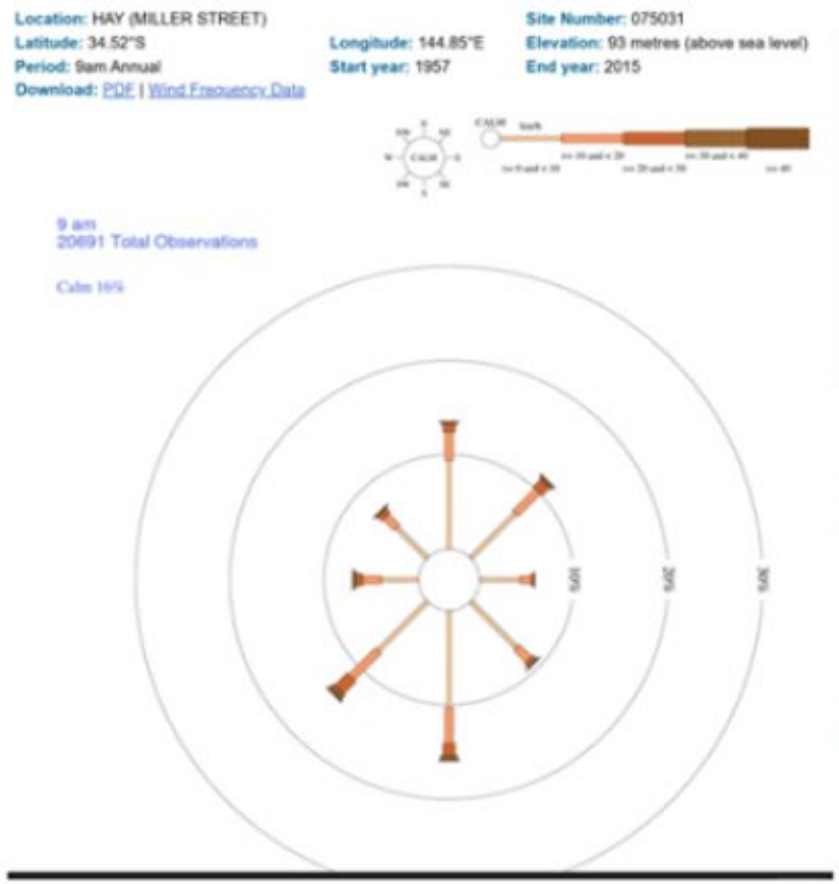
Wake 1, Lat. 32.423202. Long. 148.9909; Upstream, Lat. 32.382553 Long. 149.1586; Wake 2, Lat. 32.437755 Long. 149.0072

This data show turbulent wake air is warmer and dryer, agreeing with the hypothesis of landscape drying

Easily conducted risk research like this is being neglected by Planning Authorities

Could this be legal grounds for Class Actions for compensation to Farmers and the Australian Community?

Research is continuing, for journal publication in 2026



Within 20 km from the Bullawah Array, most of the Oolambeyan Park will lie in the warmer turbulent wake of the predominant south-westerly

Wake area will 300, 1200 or 2700 square km, depending on severity

Research is continuing, for journal publication in 2026

- Measurements at Bodangora were made 3 km from turbine array centre: How much extra drying will occur per day? The Kestrel will soon estimate this by distance, as a function of windspeed.

- The wake area sampled at Bodangora is approximately 20 square km or 2000 ha: How far does the significant wake drying zone extend?

- If 10 km radius, it is potentially 300 square km or 30,000 ha
  If 20 km, potentially 1200 square km or 100,000 ha
  If 30 km, potentially 2700 square km, or 270,000 ha

- Wind speed report was 18 km/hr or 5 metre per sec. If 12 metre per sec at name-plated speed or when feathered, how far will serious impact travel? 100 windfarms of 100 turbines will possibly impact, say, 10million ha.

- Could the current heat wave in central Europe be from transfer of landscape surface water to the troposphere? 4% more water, as in 1998 El Nino raised global T 1^{o}C

PLEASE SUBMIT YOUR QUESTIONS FOR MORE WIND POWER IMPACT RESEARCH

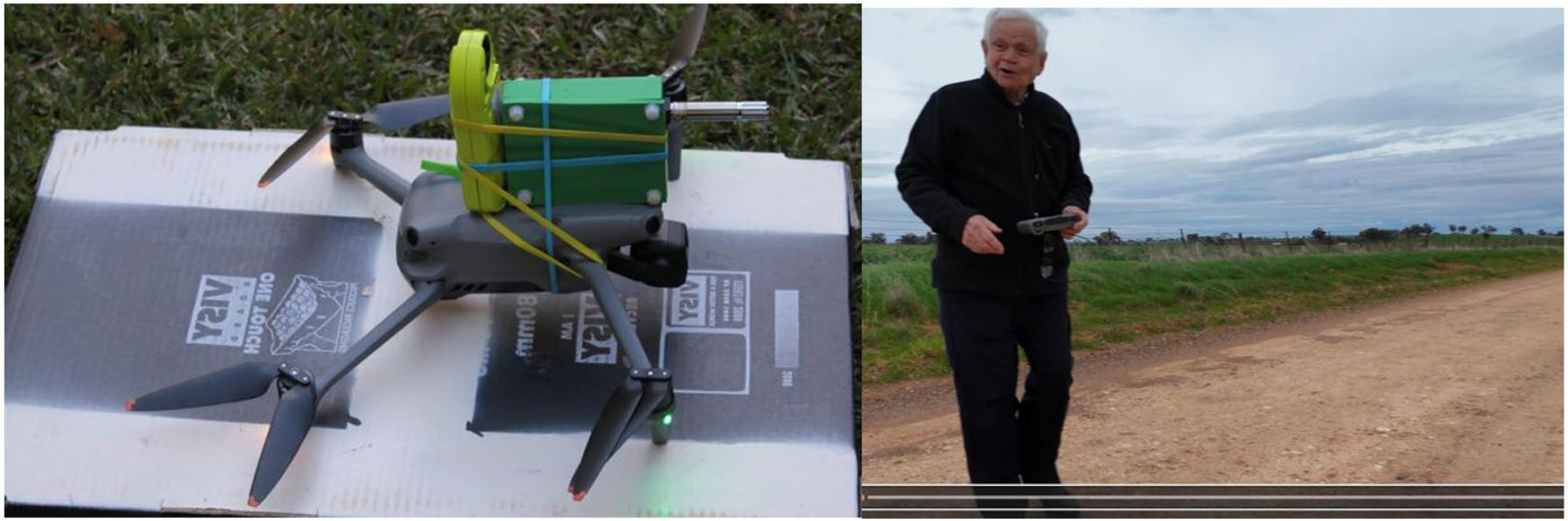


Figure 7a. Air2 showing mounting of green Vaisala-tracker with lime Kestrel 520 Meter.

7b. Air2 video shot of me walking while talking about field research defining risks to the environment on Bodangora Road.